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ROSE GROWING IN THE TROPICS

ROSE GROWING IN THE TROPICS

By

B. S. BHATCHARJI

A Chapter on the Raising of New Roses by

COURTNEY PAGE

Hony. Secretary, National Rose Society of England

A Special Chapter for Bengal by

Rai Sahib A. C. PAL, F.R.H.S.

*Late Superintendent of the Estate of the Governor
of Bengal, Barrackpore.*

Foreword by

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Director, Botanical Survey of India etc.,

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FOREWORD

It is gratifying to note that the book " Practical Rose Growing in India " by Sri B. S. Bhattacharji, has been revised and enlarged. Rose fanciers, I am sure, will welcome the publication of the second edition of the book which had already, for many years, been appreciated by Rose lovers.

Almost all the relevant subjects on Roses have been dealt with in the book under different chapters. The criticisms of different varieties, according to their suitability under tropical conditions, are so very instructive that fanciers will never be victims of commercial lyrics if they study the candid descriptions of probably the greatest rose expert in India as Sri Bhattacharji is. The coloured illustrations and sketches are valuable additions to the book.

Sri B. S. Bhattacharji is an ardent lover and grower of the Rose during the last three decades if not more. He had his early initiation in the culture, study and research on the Rose, the Queen of flowers, from his illustrious father late Pundit Panchanan Bhattacharya, one of the pioneers in Rose cultivation and Rose industry in India. The writer of this Foreword during his survey of the Rose growing centres and investigation of Rose industry in India, under the auspices of Essential Oil Research Committee and the Council of Scientific and Industrial Research, Government of India, had the privilege of coming in close contact with Sri B. S. Bhattacharji who was kind enough to offer every facility for our study and research in his rose garden where we established distillation apparatus for experimental extraction of Rose oil on spot. This enabled the undersigned to study carefully the different new varieties, forms and strains which had been evolved and produced by Sri Bhattacharji after prolonged studies and research for many years. His advice during our investigation was very helpful indeed. It is no mean credit for a Rose cultivator to fight with the variations of climate and other biotic and natural causes, and to produce Rose of standard qualities and rich varieties prized by Rose fanciers. Sri Bodhisattwa Bhattacharji by his experience gained over years of studies

and researches, has been successful in this venture, and he has also been able to produce some of the best hybrid roses for warmer parts of the Tropics. The author of the book is, therefore, to be congratulated for his outstanding work on Roses. I find the second edition much enlarged and made up to date. I am confident that Rose fanciers and, in fact, all those interested in Roses, in the Tropics will find the book very helpful in their culture and study.

I have no hesitation to say that the second edition of the book will, like the first edition which earned so much merit and appreciation, command much more appreciation from Rose fanciers.

P-19, Old Ballygunge Road,
P.O. Ballygunge,
CALCUTTA-19.

K. BISWAS.

FOREWORD TO THE FIRST EDITION

It may seem to be a presumption on the part of a mere amateur to attempt to write an appreciation of a book written by so great an expert in rose culture as Mr. Bhattacharji, but the book is written for the special use and enjoyment of amateurs and beginners and therefore an amateur can best appreciate its usefulness. There can be no doubt that a work on the growing and care of roses such as this fills a real want. There are many excellent treatises on roses and their culture published in England, and among the best of them those published by the National Rose Society. Its *Rose Annual* is a delight. But the climate and seasons in Britain are very different from those in India, so that a beginner out here is dismayed and puzzled when he seeks to apply rules and instructions so useful in England to the locality, seasons and climate out here. Furthermore while in Britain the climate is practically the same throughout, here in India the varieties of climate and elevation are so great that rules and instructions for culture in one province give little guidance in another.

The general principles of rose growing may be the same all over the world so far as soil, position and planting go, but different climates, localities and elevations require different and special treatment and are differently suitable for special varieties.

This volume will fill a long-felt want for it deals in simple and clear language, easily understandable by the beginner, with the culture of roses in all parts of India, and supplies the instruction, hints and warnings which will enable him to select the right variety, to plant it properly and thereafter to tend and feed it until it is mature and in the full glory of its bloom. Experience has taught me that the knowledge this book seeks to impart is the very knowledge necessary for success in the rose garden.

Attention should specially be paid to the recommendations made as to selection of varieties suitable for India. Many of the Pernetiana roses are beautiful and attractive. How many a beginner having noticed their blooms at some rose show in England has hastened to purchase and bring to India plants of

this variety and then has been discouraged by their early demise, thinking he has failed properly to cultivate them? And what a joy is added to the cultivation of roses if we make ourselves conversant with the type, characteristics, needs and name of every plant in our rose garden.

A very warm welcome will be, I am sure, extended to this book all over India.

Patna.

L. C. Adami.

PREFACE TO THE SECOND EDITION

I am grateful to the fanciers in India and abroad for the interest they have taken in the first edition of my book. Many admirers of the book had been urging me for the second edition which was long overdue. I regret to say that the issue of the second edition was not possible earlier due to unforeseen circumstances on account of the great war and all the associated evils that gathered after the war.

During my experience of nearly half a century in tropical arid zone I find that the problem of very successful rose growing in the Tropics have, of late, considerably increased due mainly to introductions raised by highly qualified foreign researchists, in Europe and America, who are naturally catering to the requirements of the cooler temperate zones of the world where the demand for roses, particularly suited to such zones, amount to a number which is over a million more than the number annually consumed in the entire Tropics.

I recall the words of caution, about selection of varieties, expressed by the Late Sir Leonard Adami in the Foreword he wrote for the first edition of this book. In the chapter on "Classification" I have discussed these problems with further details and invite the attention of Rose fanciers in the Tropics. Late Mr. Page was fundamentally in agreement with me, about these problems for the Tropics, when in his letter dated 18-2-1936 he opined about this book that, "It was just what was wanted and it contains a deal of valuable information unobtainable elsewhere." With profound regard I recall the memory of the great rosarian the Late Courtney Page who rendered yeomen service to popularize the Rose as the then Hony. Secretary of the National Rose Society of England. The proof of his services will be evident from the fact that when he took over charge of the N.R.S., the Society was in debt to the extent of £ 1500/- but before his demise the Society accumulated assets over £ 20,000/-.

My attempts to raise new roses, more suitable for the Tropics, are being continued for nearly a quarter of a century. Researchists in Roses know what an expensive job it is and how much

patience and meticulous observation is necessary along with some scientific knowledge about genetics. It is gratifying to learn from several amateur rose experts in different parts of India that I have succeeded in creating more care free varieties for the Tropics.

The former title of the book "Practical Rose Growing in India" is now appropriately changed to "Rose Growing in the Tropics", as I have been studying rose growing in the Tropics which forms the main subject matter of the book.

Standard of perfection in Art depends on the extent to which it can imitate Nature. However perfect the Art of colour block printing may be, it has not yet been very accurate in imitating Nature. Moreover the ban on import of foreign inks for colour prints is a handicap. The colour prints in this book, therefore, lack full tones and brightness, inspite of best efforts to make them accurate, particularly so in varieties with different colours and tones.

"Bawan Bigha,"

Baidyanath-Deoghar, P.O.,
INDIA.

B. S. BHATCHARJI,

INTRODUCTION TO THE FIRST EDITION

Although stray articles of mine have been published in the *Horticultural Trade World*, *The Rose Annual*, etc., this is my first serious attempt to write a book. In this I propose to place before you, in a concise manner, some practical hints on successful rose growing.

These hints are not intended for those who are already far advanced in this branch of Horticulture, but rather for the section of the rose-growing public who have to rely upon what they are told or upon the information they usually gather from the voluminous, if not always luminous, catalogues.

Rose culture has been my life-long study but even so I do not pretend to be an authority on them. Rather do I feel I have still much to learn in this branch of Horticulture. There are so many varieties of roses that 2,000 is only a mean estimate, and certain kinds which are often successful in one district may be peculiarly unsuccessful in another.

Particulars of these and other local problems from my readers will be gladly welcomed and any further advice, other than that which this book offers, will be gladly given.

Conditions of climate and soil vary so much in a vast country like India that it is almost impossible to point a general road to success for rose growers in this country. At the same time it is hoped that this treatise, written at the request of many of my clients and friends who have turned failure into success, will enable others to do the same.

It is not possible to claim for this book the place of a correct guide for all the different parts of India, with widely different soils and climates, but it will prove to be a safe guide for Bengal, Bihar and Orissa, United Provinces and contiguous places, as also in many other parts of India where there may be similar or slightly different climatic conditions and rainfall. It is hoped that by the aid of this book the careful amateur rose grower will be able to remove some of his present difficulties in places with much different climate about which this book is not silent.

I am extremely thankful to the Hon'ble Sir Leonard Adami, late of the Indian Civil Service, for the preface he has very kindly written for this book. Sir Leonard has all along been an enthusiastic and successful rose grower here as well as in his Kent residence. At Patna he was the chief organizer and one of the most important personalities of the local Flower Show. His encouragement in the writing of this book will always be gratefully remembered by me. I am much obliged to Mr. Courtney Page, Honorary Secretary, National Rose Society of England, in materially helping this book with his permission to reproduce his article on the 'Raising of New Roses'. I cannot thank him too much as I feel no abler pen could write on this subject.

Last but not the least is my gratefulness to Rai Sahib A. C. Pal, F.R.H.S., who was for a long time in charge of the gardens in the Viceregal Estates in Bengal, now the Governor's Estates. The publication of this book has been long delayed, firstly, owing to the difficulty of producing locally faithful reproductions of roses in colours and, secondly, owing to want of time in revising the manuscript. It was while I left the manuscript with the Rai Sahib for revision that he very kindly undertook to contribute the special chapter for Bengal.

B. S. BHATCHARJI.

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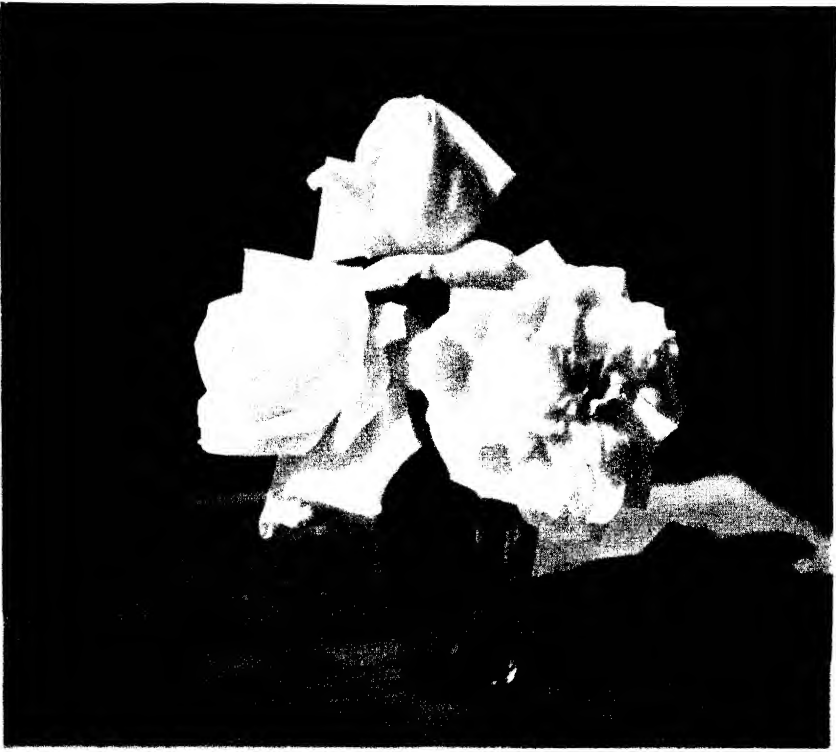
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SHRI BABU



DEEPAK RAG

CHAPTER I.

WHERE TO LOCATE ROSE BEDS AND HOW TO PREPARE THEM.

Some people assert that the most proper location for roses is the field rather than the garden. But this does not mean that roses cannot be properly grown in the garden. The ideal location is an open elevated and airy plot entirely free from big overhanging trees and their roots. Shade, at any time from morning to afternoon, should be avoided. Some shade, late in the afternoon, might be utilized to advantage. Even this shade is not very desirable from adjoining trees which, in all probability, will send forth voracious roots into the rose beds and impoverish them.

In a villa or a garden house the best place for roses is on the south of the building. The second best is the one on the east. The next is the west and the worst is the north where you should never waste your energy to grow roses unless it be quite beyond the shade-limit of the building. On the south the roses may be grown quite near the building but on the east and west they should be reasonably apart.

Certain kind of rose trees are hardier than others. Therefore it is not surprising to find some kinds making the most of what is available and managing to grow in spite of unfavourable conditions and a paucity of requisite materials.

We, in India generally, agree that the morning sun is a necessity or at least a great asset. It is not a fact that roses cannot be grown on account of some shade from buildings and neighbouring trees, provided they get direct sun for several hours. The roots of trees can be kept off for some time by digging trenches and cutting them out to the depth of the bottom level of the deepest roots that may encroach upon the rose beds and by inserting some old iron sheet towards the tree side of the trench.

Free ventilation, a necessity in growing roses, is easily available in open plots. High winds should be avoided as they

batter the trees and the thorns shred the bark, the flowers too get considerably damaged. Some sort of protection from walls, hedges or the like is a necessity where the wind is very strong. Hedges are admittedly the best wind breaks. The location, however, should never be wind-tight or smoky as is often the case in congested towns. In that case extra precaution should be taken in avoiding delicate growing sorts and selecting those that are very hardy and free-growing with ample foliage. In smoke-laden atmosphere the respiratory organs in the leaves get clogged and the plants suffer. We must remember that the leaves to a plant are like lungs to an animal.

The plants should be frequently sprayed on both sides of the leaves which is of great help in any locality. An ordinary syringe will serve the purpose. Weak soap water is best to spray with.

Another most important point in selecting the location of rose beds is an elevated and well-drained plot as low, damp situations, often found in the lower plains, are not at all favourable to successful rose growing. This defect, however, is not beyond rectification, which is easily done by drainage and elevating the ground. Even the worst wet soils can be made to suit roses by proper drainage and elevation. Some people say, roses cannot be grown with any success in lower Bengal* in or near Calcutta. But I have seen roses grown fairly well in the Indian Botanic Gardens, Sibpore, and in the Government Park at Barrackpore. At Barrackpore I had seen as decent roses as can be expected. Proper varieties must of course be selected. It is idle to make such a remark after trying to grow in Bengal a variety which is found to be delicate even in up-country. Under my instructions roses had been successfully grown by Dr. S. C. Law, M.A., P.R.S., at Agarpara, and by others in Calcutta.

So we come to the conclusion that an ideal rose plot should be free from the entire shade of overhanging trees, free from

* Since going to Press I have received a letter from the Secretary, Saturday Club Ltd., Calcutta, stating that their rose garden (which I undertook to plant as an experiment) has been a success, and that the trees have been "growing and flowering satisfactorily".

The roses planted there, while Mr. Cubitt was in charge, have perished before publication of this second edition.

very high winds as also a smoky stiff atmosphere, and situated on the south-west or south-east with sufficient drainage. To be clear I might say that these requirements are most advantageous for easy and successful rose growing; but all of them are not absolutely essential as explained above though entire neglect of several, or all of them, must be fatal.

Now to the preparation of beds. You can make them as long as you like but the width should not be so much as to make you unable to reach the centre of the beds from the sides. If you make the beds wider the soil round the roses will have to be trodden upon while working amongst them and plucking flowers. The ground being very often trodden gets clogged too soon, and this is what is not liked by the plants. About five feet, therefore, should be a suitable width. Beds may be made about double this width when a mass of colour is required and roses are not often cut from the plants. In limited space it is better to make the beds as simple and uniform as possible. They should be adjusted, according to the form of the ground and circumstances, into convenient figures. In many dwellings of large dimensions a centre place in the forefront of the building is made with rose beds. An attempt to have a rosary of any pretension without sufficiently large space will be a hopeless failure. Flat beds cut out of lawns or placed on the sides of walks can be tastefully arranged with different outlines.

The beds should be dug two feet to three feet deep; the greater the depth the better the result. Unless the place is very high and the soil porous enough with natural drainage, artificial drainage must be provided at the bottom of the beds which should not be less than three feet deep. A layer of four to six inches of broken tiles and old mortar will do in most soils. The worst wet soils will have to be pipe drained. This is a more difficult matter but once carefully done it will grow roses quite successfully even in the worst retentive soil where ignorant people say roses cannot be grown. On the drainage one layer of sods with grass downwards should be placed. While digging out the beds the soil should be thrown up on the sides as in cutting trenches. This may be done, with great advantage, about one or two months previous to planting so that the soil may get nitrified through the sun's rays which, along with some

occasional watering or turning over, will make even stiff soils friable and fit for work. When this soil is dry and pulverized, mix it with a sufficient quantity of well-rotted animal manure. A cart-load of one-year-old cow manure will suffice for a bed 20 feet by 5 feet. Fill up the beds with this mixture leaving them two to three inches higher than the surface, so that they will be level after some sinking. It is better to have much less manure in the upper portions of the beds, for if they are heavily manured like the lower portions, the roots of your new plant may get burned. It will be most advisable to mix a reasonable quantity of broken bones in the lower portions of the beds. These bones should be broken to the size of ordinary gravels and not powdered fine. They will last long and will provide a very good manure for helping flowers. One hundred weight of such bones will be quite enough for five beds 10 feet by 5 feet.. After finishing the beds leave them for some time so that the soil settles down to surface level. Water them once or twice and cultivate the soil when friable. The soil is called friable when it is not wet enough to stick to the spade while being dug, and is just moist.*

An ideal rose soil is rich sandy loam of a greasy nature, that is with a slight tendency to clay. Tenacity in soil is imparted by the proportion of clay and its looseness is imparted by the proportion of sand. A loam is a type of earth used in preparing bricks. If bricks crack while being dried in the sun, the soil has too much of clay. Ideal brick earth is good loam ; if mud out of it is handled it will have a greasy nature but will not be so sticky, without the requisite proportion of sand, as to make it at all difficult to be washed out. Very heavy or stiff soils, such as sticky clay, is not good but by the application of suitable manures even they can be changed to advantage. It is sometimes found that the soil is of the nature of gravel. If the gravels are at least two feet below the ground level they should not be dug out or brought to the surface as a very heavy quantity of manure is necessary to make gravel soil suitable for roses. Gravels are an asset at the bottom where they serve as drainage.

* While ants often cause damages, to roses in new beds, almost everywhere in Tropical plains. Precautions against them should be taken, as advised in the Chapter on Insect Pests, while new beds are manured and filled up.

I have met with gravels mixed up with the most sticky clay which are quite impervious to water and if anybody be unlucky enough to meet such a type of gravel either they must be dug out and thrown away or the idea of rose growing abandoned. This sort of soil is luckily very rare.

You will help your roses considerably if you mix up a little burnt earth, wood ashes, and charcoal in your beds. Beds with heavy, old or worn-out soils gain much by this treatment. The outer coating of brick or tile kilns, which are half-burnt, are very helpful in retentive heavy soil if freely applied and mixed in rose beds.

If the soil is stiff clay add sand to loosen it, and if too sandy and light add clay.

While preparing beds if you find the soil too heavy and sticky give a thick dressing of quicklime and let it be mixed up with the soil while filling up the beds. Strong heavy soils will naturally retain too much moisture preventing successful growth. Thorough drainage and mixture of lime will help it greatly. Never work the soil when it is wet and not friable.

Various types of rocky soils are met with in places of high altitudes. A general rule cannot be laid down for managing these. Some rocky soils are hard and unyielding and are difficult to manage without a long course of labour. They must be broken and mixed up with copious quantity of cow manure and leaf mould and should be regularly inundated. But there are some soft and yielding rocky soils which have sufficient quantity of iron and other mineral fertilizers. Such soils when mixed up with sufficient quantity of animal manure and leaf mould become suitable for growing the finest roses with the fullest satisfaction.

The last but not the least point to attend to while preparing beds is the relation between climate and soil. In places with scanty rainfall heavy loam is the best and in those with heavy rainfall very porous soils are the best. If they are not naturally available they should be artificially made.

How to take care of roses on arrival.

Roses on arrival should at once be taken into a shady place sheltered from winds. Then they should be carefully unpacked

and every plant separately placed for examination. If any branch be broken it should be cut clean away with a sharp secateur or pruning knife. The cut should be a little above the first bud (eye under cover of the leaf stalk) below the injured portion.

In almost every case the plants require a good sprinkling of water as the servants of carrying companies invariably handle them roughly and often leave them fully exposed to the sun.

It is better to let the plants have rest for a day unless they seem to be quite unaffected by the journey.

It happens in rare cases that roses arrive too much dried up and shrivelled and seem to be almost beyond the hope of revival. Under such circumstances a small trench should be immediately dug and the plants laid flat on the ground inside. The trenches should then be filled up with soil, entirely covering the plants, and thoroughly watered. After about two days the soil should be carefully dug up and the plants taken out. It will be found that many of those seemingly hopeless plants have revived. A mud bath will also help them if they are less affected. Mud mixed with water so as to form a semi-liquid paste should be kept in a tumbler and the rose stems should be kept dipped for a few minutes before planting. Roses travelling by post have no earth around the roots. If any such plant is dried up it should have a mud bath all through, that is both at the roots and stems.

It also happens that roses arrive during the rains and for several days the weather is unfavourable, making the ground unsuitable for planting. The plants should then be placed side by side in a lighted and well-ventilated place and covered at the roots with friable soil, or sand in the absence of the former. If carefully watered the plants can safely be stored up for some time until the ground is ready to be worked.

In places infested with white ants there is a risk of damages through them while the plants are either temporarily buried or stored up. A very weak solution of phenyl water will prevent it.

How to plant roses and when to plant.

The correct depth of planting a rose is placing the point of union about two inches below the ground level. One inch is minimum depth and two inches maximum. It is necessary therefore to have plants with as low union as possible. Some gardens supply budded stock with the union up to about six inches above the roots of the wild rose. Such plants must of necessity be planted too deep, as otherwise wild suckers will be a constant trouble with leggy unhealthy plants. It makes not much difference whether your plant is "budded" or "grafted" on a suitable understock. But it makes a very great difference between one grafted or budded very near the ball of earth and one worked much higher.

Too deep planting should always be avoided. Tread over the soil very firmly round your roses as soon as you plant.

While planting the distance between the roses, and the lines in which they are planted, should be carefully arranged.

No general rule can be laid down for the distance as there are so many types of growth. A moderate growing rose of neat bedding habit should be planted about two feet apart. If you want to see no bare ground in your beds 18 inches apart in cases of only dwarf and very moderate growers might be a suitable distance as in many English gardens. But should you care to allow more room you can plant three feet apart as is often done by commercial growers here. Vegetation being vigorous under tropical heat very close planting is not advisable. In beds which are not too wide reasonably short distance is preferable as roses are seen to best advantage in masses. If at all possible try to have different small beds and leave each to a selected variety. Do not have too many varieties in one bed. The ideal way to appreciate the real worth of a variety is to plant a whole bed of it, as a single plant will often give a false impression. Even in a border it is best to plant several, say half a dozen, together. Nothing is more enjoyable than a mass or a batch of each variety. There are many classes with different types of growth and they look very odd if carelessly mixed up. Even in the Hybrid Tea class there are varieties with two and a half feet to six feet growth. By mixing them up indis-

criminally you force the dwarf to languish and make the beds odd looking.

While planting always make it a point to plant late in the afternoon and, if possible, protect from strong midday sun for two or three days or as many days as your plant may require.

There are many tall and vigorous growing varieties which require much more space than moderate growing bedding roses. Many of the old Hybrid Perpetuals, Climbers and even some of the newer Hybrid Teas with very vigorous constitution peculiar to almost all of the H. P.'s (for example George Dickson, His Majesty, J. G. Glassford, etc.), are best grown with ample space around them. Properly cultivated plants of this type should be four to five apart as they will cover the distance and produce a great burst of blooms in their seasons.

Most of the Dwarf Polyanthas should be spaced tight in small beds like annuals and thus planted they are a very pleasant sight all the year round unless prevented by too much heat or frost. One and a half feet should be a good distance for them when they are planted in up to three rows in a bed.

While planting in beds it is better to plant the trees as shown in the diagram below, as by so doing you do not see so much bare ground between them.



After planting and after treading the soil firmly around them, pour sufficient quantity of water.

In the plains of India where very extreme climates are not met with, roses can be planted during most part of the year excepting summer, and very heavy rains, provided necessary care is taken in watering and protecting them.

In places with high altitudes up to about 2,000 feet and without humid heat and too heavy rainfall, and where the soil

is porous and well drained, you may plant in the beginning of the rains, say July. By planting in the rains the only work is to keep the beds free from water logging and free of weeds and grass. The plants make root growth during the rains and will give some flowers from autumn or winter. The watering question is almost eliminated during the rains and therefore many people get inclined to plant during the rainy season disregarding the following facts which cause some casualties. Roses revel much more in cooler weather than in very humid heat; during the latter part of the rains in the Monsoon area of Tropical plains root growth is suspended. There must be some wounds in the root system when it is transplanted and such wounds may be more fatal during the rains than in the cooler weather. Planting during autumn and early winter is therefore the best and safest everywhere. By high altitudes I do not mean such high hills as have snowy winters or are cold enough owing to adjacent snow peaks. The best months for such places are October, November and March, April. November to February are the best months for the Punjab. October to January are the best for the United Provinces and the rainy season is the next best.

In places with lower elevation as in most parts of Bengal and some parts of Bihar it is best to plant from the end of September to December. This should also be the case in places with too heavy rainfall. Further up-country where the climate and soil is drier, planting can better be done in the rains but not in places with heavy monsoon and risk of water-logging. Late autumn or early winter planting is the best in places with scanty rainfall. In the hills, however, where the winter is intense and frost not uncommon, autumn planting is the best. Spring planting can also be done but not during rains which are either heavy or constant in the hills.

Slight variations should be made according to soil and climatic difference. In a wide country like India where great differences of climate and soil are existing, it is impossible to have general rules, and to slavishly follow any in all places will be troublesome.

CHAPTER II.

HOW TO FEED ROSES AND WHAT MANURES ARE BEST.

Roses are gross feeders and when established can with advantage assimilate any amount of manure. The manures when perfectly dissolved in water are taken in through the root hairs by a purely physical process of osmosis. Liquid manures should not, if possible, be the only form of feeding.

While giving suggestions about the preparation of beds, proper methods of manuring the ground have been stated. The suitable manures are being stated here fully. Such beds, as have been prepared according to previously stated instructions, need no further manure for about a year. If you so desire some liquid manure may be given but only when the plants are growing freely. Numerous roses are killed through over-manuring in the first season. Always remember that the manure is to help growth and to place a plant in manure is to cause its death. I know of instances where amateurs after pruning their trees opened out the roots (for adding fresh soil and manure) and poured two to three handfuls of oil cake or fowl manure with copious cow-dung or pig-dung in the expectation of very vigorous growth. Some of the plants were dead and those that survived were seriously damaged. When you feel that the manuring has been too heavy, and the ground heated by it, take out some manure and inundate heavily, if the soil is not too wet.

It is the general custom here to manure plants at the time of pruning. Some people thoroughly dig the beds and open out some of the surface roots just before or after pruning. Opening out of the roots is not a necessity everywhere. It is never practised in other parts of the world. In some retentive soils, and in lower elevations of Bengal, Bihar, U. P., and other such places the opening out or "wintering" of the roots, as they call it, is advantageous, as by doing so you get rid of the stagnant moisture, and can add fresh soil, preferably virgin, which is a great help for roses. In higher elevations and in places where the

stagnant moisture is either very little, or easily evaporates, good manure can be thickly sprinkled on the beds and deeply forked in without actually disturbing the roots.

It has been a matter of considerable discussion and criticism why this opening out of the roots should be practised in the Indian plains when the same is never done in most other parts of the world. I may state from quite a number of years' personal experience that vigorously growing old-established plants, at least two years old, thrive much better and produce much better blooms under the treatment called artificial wintering. Varieties of the type that mostly produce more leaves than flowers or flower only in season as for example the Hybrid Perpetuals respond to this treatment. Some people have complained that plants are seriously damaged by it. The damage, however, is at times caused by over-practice. Excessive sap that produces more leaves than flowers is controlled by root-opening and induces the trees to flower.

Some inexperienced amateurs will unearth major portion of the roots and leave their plants open even when the soil is dust dry. If the roots are forced to dry, the life of the plants are affected at least temporarily. Thus obviously the too much opening, and neglect to cover in time, is the cause of damage. The correct treatment is not responsible. The criticisms come from the example of places where the winter is hard and pruning is mostly done in spring. There the hard winter considerably or totally checks the growth of the plants and puts them to rest until the weather is warmer again when they are pruned. The hard winter prevents the soil from getting so much jammed round the roots and the moisture from getting stagnant before the pruning season, as is the case in the plains here. The tropical rains are very heavy and they sink down or wash out the manure around the roses. The heavy rains apart from bringing in stagnant moisture tend to make the soil heavy and less porous. These conditions help the fibrous roots to rot. The bad effects of this can only be remedied by exposing the soil above the roots at pruning time. Please note that the system of opening, concerns the soil near the roots but not actually the roots themselves. Even if some portion of some roots get disturbed or exposed, there will be no bad effect if they are covered with

virgin earth mixed with good farm-yard manure ; rather it will be better for vigorous growing roses. The opening out of all the soil near the roots and the clipping of all the leaves with sappy fresh growth at the time of pruning will force the rose to an artificial rest or dormancy which is naturally caused to it under a frosty or snowy climate which cannot occur in the tropical plains. The illustrations of opening of the soil near the roots and the results of the crop will, I hope, be convincing.

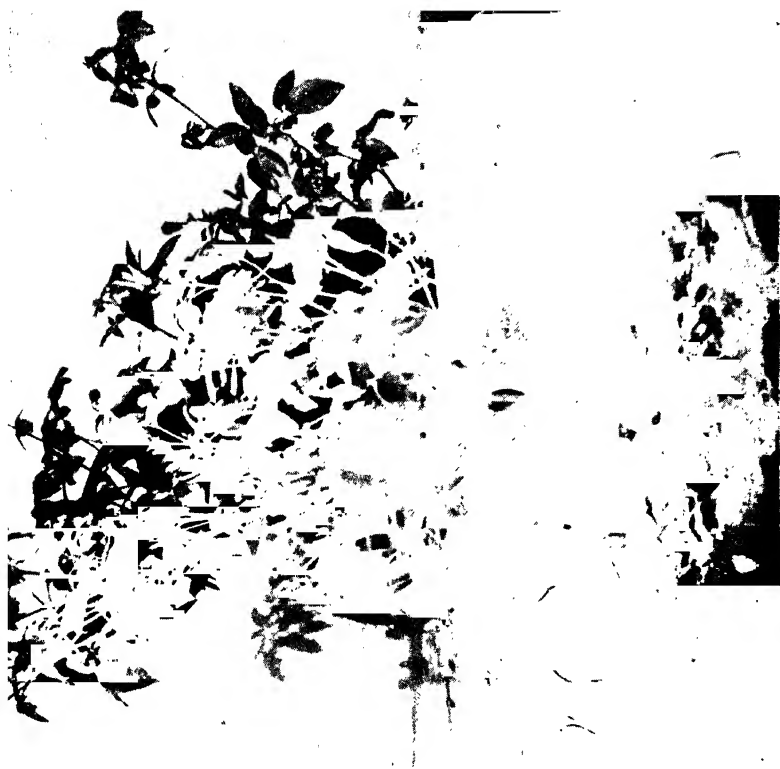
Even delicate growing varieties and moderate growing ever-blooming varieties will be better by having three to four inches of soil removed, from a circle about one foot or more according to growth, around them and animal manure sprinkled about one inch thick in the cavity. This manure should be forked in as low as possible without very seriously disturbing the roots. This system should be applied everywhere, in the tropics, before pruning.

After pruning and manuring, the plants should not be immediately watered unless you feel that there is derth of moisture or that the manure has been in excess and has over-heated the soil. It is necessary to cultivate the soil several times within a period of about a week in the case of every vigorous types e.g., Hyb. perpetuals. This will make the soil as mellow and friable as possible. Then give a quantity of water just enough to induce the buds (eyes on the stems) to shoot out new growth. As soon as the soil is friable cultivate again and thenceforth gradually increase the quantity of water. Flooding of beds should be applied as soon as new growths are fully out. Apply liquid manures once or twice a week until the flower buds show colour. Watering should be less generous in case of varieties which easily run to leaf. When buds are coming water freely.

A beginner is often bewildered as to what manures are to be used because there are so many in the market. He is often tempted to use the chemical manures or concentrated manures as they are very easy to apply. An over-dose of chemicals will kill the plants within a short time and no chance of escape is left. But in an over-dose of natural manures or organic manures you have a chance to remedy the defect and in all probability save the plant. Chemical manures, however, cannot be condemned as they are advantageous in the hands of the experienced



THE ROOT OPENED PLANT, AFTER "THINNING OUT"
FIG. 2



OPENING OF SOIL AROUND THE ROOTS AT PRUNING TIME.
THE WHITENED CAVITY CONTRASTS WITH THE SOIL.
LIFTED AROUND THE PLANT
FIG. 1



THE CAVITY, CAUSED BY THE OPENING OF SOIL, FILLED UP
WITH MANURE. THE MANURE HAS COVERED THE
WHITENED CAVITY

FIG. 3



THE MANURE COVERING THE OPENING FORKED IN AND THE
GROUND MADE LEVEL.

FIG. 4



CHATHILON ROSE



RESULT OF CUT OF THE ROOTS AND SUBSEQUENT
TREATMENT
FIG. 5



VIGOROUS GROWING "H.T."



There can be nothing better than cow manure but for heavy retentive soils two parts of horse manure and one part of cow-dung is best. Pig-dung is a very good manure if applied lightly, but it is not always available in quantity. Cow manure should be at least about one year old and horse manure eighteen months to two years old. No animal manure should be applied until it is really rotten. Cow manure is fit for use when it becomes dark brown in colour and is powdered with pressure. Manures are often left in the open flatly exposed to sun and rain; most parts of the valuable ingredients are thus lost. The urine contains a greater percentage of manures and should be put into the dung pit. Animal manures, preferably cow manure, are the greatest necessity for cultivating roses. You cannot supply too much of it. Apart from supplying ideal food for roses, cow manure adds much humus to the soil; other animal manures are also efficacious in this respect. About a six-inch potful of animal manure will do for average plants. If the plant is small give less manure, and more if big. The manure should be powdered and passed through a sieve before using.

Leaf mould is another very helping manure and is cool. It has got the capacity of making heavy soil loose, and improving light soil. It is a very good auxiliary and should be used freely, wherever the soil is not already full of humus—decomposed vegetable matter—as in lower plains of some river valleys.

Municipalities trench town sweepings mixed with night-soil. They sell this as “Compost Manure” by digging out the decomposed matter. It is extremely good for roses if this Compost is freely mixed into the rose beds during the pruning season. It should be passed through a coarse sieve and evenly spread out on the rose beds to the thickness of about two inches. The compost is to be thoroughly forked or dug in so that it goes below the surface as far as possible. About a month before the pruning season starts, a handful of Bone-meal should be sprinkled over a circle around each rose and forked in. As this manure is slow acting it should be applied at least a month in advance. If you remove some of the soil around your roses, in order to have “artificial wintering” of the strong growers, another handful of bone-meal should be applied around the roots before covering up the roots by the removed soil or by

fresh virgin soil as you may secure. In high altitudes, without retentive soils and boggy lands of river belts, opening out of roots at pruning time may not be practised.

Scrapings of the fowl and pigeon houses are very powerful manures and are good substitutes for guano. They are very hot and a little sprinkling over the surface or applied in a liquid form during winter is enough. They should only be applied to established and growing plants. They will burn the roots if put in excess. In many places this is more easy to procure than old cow manure and is less troublesome as a small quantity will serve as a tonic. They are best used as liquid manures. But when good old cow manure is available *on no account use any other substitute*. Horse manure is good in stiff clay and should be over one year old and fully decomposed before use.

Bone meal, although not a complete manure, is most useful because it helps a great deal the production of flowers as also the growth to some extent. Fish meal as sold by some firms, or dry fish powdered fine, produces very similar effect as bone meal, and acts more speedily. Bone meal, however, is a lasting manure although slow in action. Steamed bone meal acts more speedily and is better.

Oil cakes are an absolute necessity if you want to excel in flowers. These should be applied in a very small quantity. Half a handful at the most to each established plant in the growing season will do. Among oil cakes Castor cake is the best which is to be rotted for about a fortnight and powdered. It is then to be applied in a dry state. A handful mixed up in the soil around the plant will be enough. The quantity is to be proportionately reduced according to the health and strength of the plant. Mustard oil cake is nearly as good. These manures are for forcing and are to be applied after the rains when the weather is mild.

Slaked lime is a necessity, in heavy clay or stiff soils. It makes the soil loose; sourness of soil through heavy manuring is prevented by lime which makes the plant foods more easily accessible. They should be lightly sprinkled on the beds and mixed up with the soil during the rains. Lime exhausts the soil, so use it very lightly once a year at the most.

Liquid manures as stated above are quick-acting and when-

ever an extra vigour is wanted liquid manure is the thing. Liquid manures are a great necessity to an exhibitor. Sheep droppings, raw cow-dung, fowl manure, soot, and fish meal can be applied in a liquid form when extra results are desired. Sheep, cow and other animal manure should be placed in water for three or four days and then strained. This water will have to be mixed up with pure water, so that the colour is never deeper than that of weak tea, and applied. Soot is difficult to make liquid. Put it in a bag and tie it up with a heavy stone and let it lie under water. Fowl manures and fish meal are strong manures, they should be applied much more weak. Half a handful of fowl manure will do in two gallons of water and double the quantity of fish meal can be used at the most. The safest course is to begin by applying weak and to gradually increase according to the necessity of the plant. "Weak and often" is the secret. Always remember that over-manuring is a fault which once practised cannot be remedied. Many diseases, and too much of unhealthy growth, are the result of over-manuring. Carefully bear in mind that liquid manures should not be applied when the soil is quite dry. It should be stopped in hot and dry weather. Phosphates are a necessity for the production of flowers. Bone meal and fish meal are phosphatic manures and considerably help flowers. The drainage from bath rooms should always be utilized. About three to four handfuls of wood ashes containing charcoal will be very effective if applied to each plant. Burnt earth and pounded old mortar should be utilized whenever available; the problem of rose growing can be greatly solved by mixing these in heavy retentive soils like that of Lower Bengal.

Chemical Manures.

Organic manures are gradually transformed, through bacterial process, into nitrogen, phosphorus, potash etc., and are drawn up in solution through root hairs to build up the plant body. It may therefore be thought that if nitrogen, phosphorus, potash etc., are supplied in chemical forms it will not only be an easier job but will also be more quickly available to the plant. But this will be a fallacy because the artificial chemical manures do not supply lasting food to a plant. They are a temporary tonic.

just as alcohol is a tonic to a human being. A human being assimilating necessary food may have a temporary energy by alcoholic tonic but the same tonic will prove fatal if consumed in excess or without food. It is the same case with plant body. You can make it temporarily more energetic with the tonic of chemical manures but it will languish if you do not provide the food of organic manures. Animal dungs, decomposed vegetative matter, bone meal, oil cakes etc., provide food while chemicals provide a tonic. Lands treated with enough of organic manures will produce a tolerable crop even next year if further manuring is completely neglected but the crop will be very poor next year if a land treated with only chemical manure is not provided with further application of chemicals. By regular forcing with chemicals, neglecting organic manures, a land will be ruined by serious damage to its physical condition. Instead of forcing your roses with chemical manures it will be a sound investment if you continue forcing your rose beds to improve their physical condition by application of a full two inches of top covering with good cow-dung manure and forking it into the beds. ,

It must always be remembered that you cannot grow roses to perfection without organic manures among which well rotted cow-dung stands supreme. We hear of root forming or root inducing Hormones. Seradix powder induces rooting of cuttings to some extent but, being not a scientist, I do not know whether there is any chemical which can increase fibrous roots of a rose tree. From practical experience I have found that manuring with sufficiently old cow-dung and decomposed oil-cake considerably help addition of fibrous roots to an established rose. Roses forced with artificial manures are more susceptible to diseases than those that are fed by organic manures. There is, undoubtedly, some extra energy through artificial manures but you should never use them until the plants are fully established nor during spring or the hot season in the tropical plains. After the beds have had their usual organic manures and after new shoots have appeared on established plants, after pruning, you may sprinkle chemical manures on the ground. After sprinkling the chemicals there must be copious watering so that the chemicals go down to the roots. Nitrate of Potash is better than Sulphate of Ammonia for roses. Muriate of potash should never be

used as it is injurious to roses. If Nitrate of Potash be not available the next best is Sulphate of Amonia which should be used with equal quantity of Superphosphate. One ounce of the mixture should be sprinkled per square yard and the beds are to be fully drenched. Another such application may be made after about three or four weeks if needed. Small proportions of Sulphate of Lime, Sulphate of Magnesia and Sulphate of Iron is helping. Chemical fertilizer dealers of repute, e.g. Messrs I.C.I., can render better help by supplying complete artificial manures. When flower buds are going to show their colours chemical manures should not be used.

Foliar Feeding.

Foliar feeding has of late been much discussed and is in use in some parts of the world. Foliar feeding, when properly applied, will be beneficial. It is a known fact that rain water imparts vigour to plants. Rain water is naturally surcharged with nitrogen which imparts some vigour to plants although too heavy and continuous rains wash out some nutrients.

It will be a mistake to think that foliar feeding will be enough for roses and they will thrive without manuring the soil. Foliar feeding is just an auxilliary while farm yard manure is imperative.

Leaves to a plant are like lungs to a living body. Plants breath through the leaves which carry on vital functions of the plant body. Just as we feel refreshed by a bath, roses will also feel refreshed if they are sprayed upon. Insecticides and fungicides are sprayed upon roses. Insecticides and fungicides can be sprayed on roses, after new shoots appear, as a prevention in small dozes. Along with insecticides water soluble chemical foods can be sprayed on roses. Messrs B.O.C., Chemical Dept., will supply you with insecticides and fungicides and you can ask them about small dozes. Messrs I.C.I. can help you with chemicals containing Nitrogen, Phosphorus, Potash along with minor elements for spraying upon the foliage. While spraying please remember that it must be done in the morning and in small dozes otherwise some leaf burns will occur under the chemical actions.

How to prune roses and when to prune.

One of the prime factors in successful rose growing is pruning. Pruning is a necessity for better growth of plants and better flowers. Old exhausted shoots are detrimental to roses and must be eliminated through pruning. Never prune a rose until it is fully established and not before it is at least a year old. Some vigorous growing Hybrid Perpetuals and Hybrid Teas with similar constitution, which are not perpetual in their blooming habit, are not pruned with any advantage until they are about two years old and have well-ripened growth. Pruning is again a special necessity if flowers be required on a particular date, as also for preventing the plants from being misshapened.

The stronger the growth the lighter the pruning, and the lighter the growth the stronger the pruning is the general rule. Hard pruning or strong pruning means cutting the shoots of the plants down to a shorter length. In strong growth light pruning is really the golden rule, but I have seen from experience that many of the ever-blooming roses produce very good results by very moderate pruning. If dead, old and weak shoots are cut out and the centre of the plant made open by "thinning out" crossed shoots, probably the best results are obtained in most of the perpetual bloomers as shown in the illustrations.

For amateurs who would like to enjoy a mass of blooms in place of just a few perfect flowers fit for exhibition, I think the above method is the best. Some people prefer their rose trees to have one uniform height. For them, pruning is the only course. But the trees should not be pruned so uniformly as a hedge is clipped.

A beginner may be surprised at the idea that stronger growths should be lightly pruned and lighter ones strongly.

He probably thinks that a dwarf variety will be further weakened through hard or strong pruning. If a dwarf plant is strongly pruned, a lesser number of shoots will come out and the plant is able to nourish them better and produce better flowers with better growth. If not pruned strongly many more shoots will come out, and the resources of the plant will not be enough to nourish them with proper vigour, while many of the resulting shoots will be blind; and if any buds are formed they



RAMKRISHNADIVA





SHOW GIRL



will open to very poor flowers. Similarly if a stronger grower is pruned lighter, the greater number of buds left on the plant will shoot out a larger number of branches and the plant having ample resources will nourish them properly and produce successful flowers. But if they are hard pruned, the lesser number of shoots resulting from such pruning will be so forced by the extra nourishment that more vegetative growth than flowers will be available. A shoot is called blind when the growing point terminates without producing a bud. It is the effect of improper nourishment.

Hybrid Perpetual roses and those with similarly great vigour of growth should be pruned lightly.

If the flowers are required for exhibition the very vigorous growing roses should be pruned a little less light than those required for garden decoration.

Needless to say, a very sharp secateur, a narrow but very sharp saw and, if possible, a pair of the thorn-resisting gloves are necessary. Let us proceed with these.

A beginner will at first find difficulty in handling the plant which will seem to be too crowded with many shoots crossing each other in every direction. Let the dead and unripe shoots be cut clean off from the places whence they sprang. Thus you get rid of a good proportion of the unnecessary bulk of the tree. Then start thinning out crossed shoots and making the centre open. Do not leave too many shoots; keep ample space around each of the shoots you leave. Remember a very vigorous grower will throw out numerous new branches which require sufficient room for healthy growth. When you have got rid of the unnecessary branches, you have made the tree lighter enough to handle with ease. Then cut off the leaves to make it more easy. Any weak shoot should also be cut clean off. Strong single shoots proceeding from the base should be pruned back to about 18 inches from the ground and two to three buds (eyes) should be left on the laterals which have grown from strong older shoots. The number of laterals on each of such shoots should be left according to growth, two being a good average on each strong shoot. This will do for garden decoration, but for exhibitions a little harder pruning is necessary, say two buds on each lateral and cutting back other single shoots to about 14

inches. Always prune to a bud pointing outwards as otherwise you crowd the centre of the plant too soon. There should be variations according to weather conditions and existing moisture in the ground. If the weather is suitable enough with pretty advanced season, and the ground not wet enough to induce too sappy a growth, pruning as above can be resorted to with advantage; if otherwise, wait till weather improves. When buds appear on the new shoots it may be found that some of the shoots have been blind, that is they have not produced any buds. The plants should then be examined and all such blind shoots should either be cut clean away or cut back to one healthy bud (eye) if the plant has not enough of new shoots. When flowers are intended to be staged in any exhibition all such shoots should be entirely got rid of as otherwise the existing flower buds will be starved and their quality may be lowered.

There are some Hybrid Perpetuals and Hybrid Teas which are not of so very vigorous growth. These necessarily require a little harder pruning than over-vigorous plants producing lesser number of flowers. Hard and fast rules cannot, however, be laid down unless each variety is separately discussed because there are countless varieties and various types of growth. Discretion and common sense must always be used.

Quite a number of the old Hybrid Perpetuals and some of the recent Hybrid Teas (which would be better classed as H.P.'s) are found growing to a height of six to seven feet and some are of semi-climbing growth. It will never be advisable to cut these back to 18 inches for they would run into leaf and produce fewer flowers. They must be pruned to a height of two and a half feet to three feet according to the vigour of the particular plant or stem. As an example I might name Frau Karl Druschki, Elizabeth Vigneron, etc., of the H. P. section, and His Majesty, George Dickson, J. G. Glassford, etc., of the H. T. section, as also Madame Isaac Pereire, of the Bourbon section. Again there are quite a number of varieties with less vigorous growth but frequently blooming habit which produce admirable results if cut back to the height of about 14 to 18 inches. As an example I name varieties like Paul Neyron, of the H. P. section and Hadley, Mad. Jules Bouche, Edith Nellie Perkins, E.G. Hill etc., of the H. T. section.

I have stated above that perpetual or regular bloomers may be very moderately pruned or treated with the "thinning out" process, as I may call it. I get very satisfactory results in this type of roses by cutting out dead, sufficiently old and weak shoots, "thinning out" crossed ones and making the centres open. In fact I had been growing an enormous number of plants, when I was in the cut flowers trade, without any cause for complaint, and I cut flowers almost throughout the year. I am not convinced that ruthless hard pruning can bring about better results in any way or could impart longer life to the plants in the tropics. As an example I may name varieties like Lady Hillingdon, Etoile de Lyon, Mrs. B. R. Cant, Irish Harmony, E.G. Hill, Etoile de Holland, Charles K. Douglas, and a lot of other perpetual bloomers. Some may say that flowers of best quality are not available but, I can assure them, they will often get new basal shoots which produce the finest possible flowers. Apart from the basal shoots good flowers are obtained also from side shoots and highest quality blooms are obtained in the second crop. Vigorous growing varieties can be developed in decent continuous blooming shrubs under this treatment.

Climbing roses should on no account be pruned hard. No pruning is necessary excepting the cutting out of dead, weak and old exhausted shoots. Some "thinning out" so as to allow free access of sunlight and air in the centre of the plants will be sufficient for them. Seemingly old shoots are not always exhausted; these throw out new branches and should not be cut off unless you are sure that they are really exhausted. They are an asset as in the case of Marechal Neil and the like. The recent climbing sorts from H. T. and Pernet roses if pruned hard will, in some cases, revert to dwarf form and will for a time remain as defective plants, being neither a satisfactory climber nor a satisfactory dwarf.

Dwarf Polyanthas should never be pruned hard. No pruning may be the principle for them. They should only be "thinned out" by removing the dead, old, very weak shoots, and any clumsy central growth.

The illustrations on pruning will help my readers to get an idea. Vegetation being more vigorous in tropical plains, pruning should not be hard here, but in places with extreme frosty winters

and places with nearly European climate, as in some of the high hills, the pruning may be harder. The "thinning out" process described above may be applied, with advantage, to suitable varieties even in these climates.

A good time for pruning in the monsoon belt of tropical plains is autumn, that is when the rains are completely over and winter is approaching. Early pruning should be avoid. If pruning is made early there is every risk of getting rain after the plants are cut. Under such circumstances some plants may develop abnormal growth to the risk of flowers. Vigorous Hybrid Perpetuals, and other roses with similar habit that produce less flowers, will be very generous in blooming if pruned late. The correct time for pruning in the plains is when the plants seem to be partially inactive, stopping fresh growth, and when they begin to shed some of their leaves after the rains.

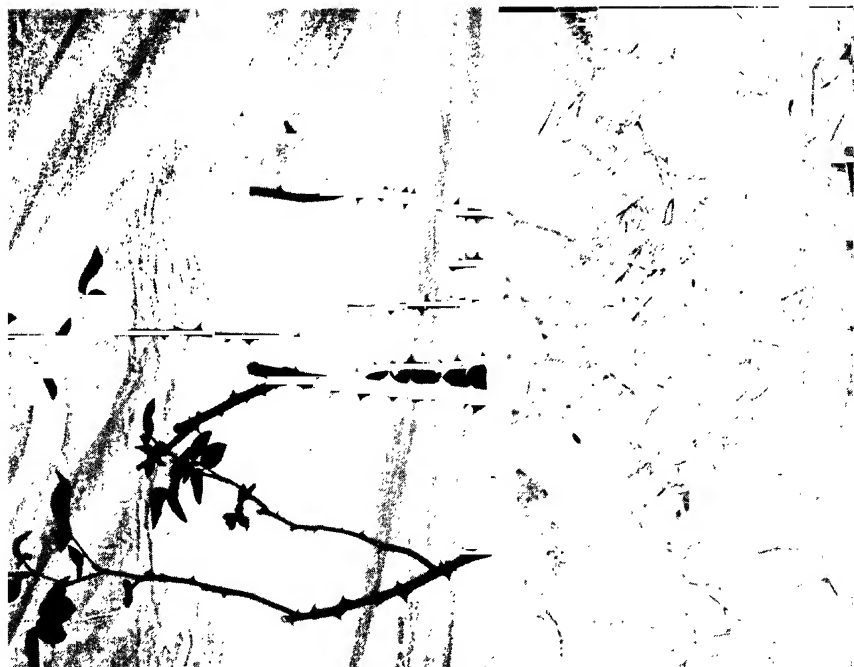
Commercial growers in or near Bengal generally prune after the middle of October so as to get sufficient flowers during Christmas time. This entails a little risk in varieties having excess of vegetative growth specially if an occasional heavy shower comes in after pruning. Amateurs who, without caring much for flowers on any particular date, want to have the fullest display will do well to wait for about a fortnight or more for the best weather. By so doing they run no risk and get better and more flowers. I may state for example that roses like George Dickson, Mad. Isaac Pereire, His Majesty, etc., will produce at least double the number of flowers if pruned at least a month later than the middle of October.

If flowers are required on any particular date regular pruning should be done about 60 to 65 days prior to that. In a normally cool season in the warm tropical plains a rose will produce blooms within 60 to 65 days from the date of pruning. In cooler places the time will proportionately increase, so much so that in the cold hills flowers come out about three months after pruning.

Ever-blooming roses and Dwarf Polyanthas and Hybrid Polyanthas may be worked up earlier if "thinning out", instead of formal hard pruning, is done. There is no risk of their running into more leaf than flower by early working, and they will fill up the want of flowers when other varieties are entirely bare



S. PERCY-LANCASTER



MADAM CURIE ("Thinned out")



MADAM CURIE. (Before "thinning out")

under pruning. Where the elevation is low, it is best to "thin out" the ever-blooming roses from the 20th of October and prune the vigorous growing rather shy bloomers from the 15th of November. In places with heavy rainfall (say over 50 inches) pruning should be delayed till the time the soil is mellow and friable.

Local conditions are so very different in the Tropics that no hard and fast rules can be laid down. Let us take Bihar into consideration. In places with not very low elevations roses are mostly pruned from the 20th to 25th of October; at least the commercial growers will invariably do so to meet Christmas demands. From practical experience I may state that plants of very vigorous varieties will produce, if pruned about the 15th of November, a greater burst of blooms and few shoots will be barren.

All the above-mentioned timings are not meant for the hills. The climate there being almost the reverse, different treatments are necessary. By hills I mean pretty cold places above or about 3,000 feet in elevation. Autumn pruning is not advisable there, as by the time flowers are due the weather will be too cold and the plants will be almost inactive in the extreme climate. Pruning should be done by the end of March to early April in places where the winter is too hard. In such hills where snow is uncommon a little earlier pruning is better.

There is an admirable way of inducing strong vigorous growing roses to produce a mass of flowers. Only such roses as do not freely produce flowers throughout the year and which produce too exuberant growth are suitable for such treatment. Weak, quite immature and dead shoots should be cut clean away leaving only the thumb-thick shoots. Do not keep too many of these. Pull down the tops of such strong shoots and leave them fastened to a peg in the ground in the shape of an arch. Also have them defoliated. This process is technically called "pegging down". The plants so treated should be copiously manured and freely watered. All the dormant buds on the stems will push forth new shoots to be crowned with flower buds in due course. Each plant will thus produce a mass of flowers. Plants like Madame Isaac Pereire, George Dickson, Frau Karl Druschki, His Majesty, etc., will fully respond to this treatment in their proper season. This process should not be practised early in the season, for if

some shoots be blind the effect will not be of the best. Plants for pegging down should, however, be carefully nursed and fed so as to produce such strong shoots every year. The old shoots that have flowered should be cut back after flowering and new basal shoots encouraged for pegging down next season.

Watering and necessary care.

Copious watering is a necessity for roses. Much better results are obtained by regularly flooding the beds than by watering often and in small quantities. By copious watering I do not mean water-logging which is a nuisance particularly in lower elevations with retentive soils. This is the reason why roses are at their best in higher altitudes during autumn and winter, whereas in low elevations with retentive soil and near sea coasts in the tropics roses are better during spring or during the approach of summer. Stagnant moisture at the roots must of necessity be avoided. Regular cultivation of friable soil is the only means which exposes the soil to the actions of sun and air. Do not water until there is a necessity for it. The more copious is the water, given when necessary, the better it will be for your roses. They may with advantage be flooded in the flowering season like cabbages so as to soak the beds through and through. Under average climate one such watering will be sufficient for about a week. In case of isolated plants or batches of them some soil should be placed in ridges around them so as to let the water reach the roots. There should be sufficient interval after each drenching so that there cannot be any stagnant moisture and the soil is sufficiently pulverized before another watering.

Too much of the above principle is often practised and roses are regularly watered even when the soil has much settled down and has been impervious to water. Cultivation is a necessity after every one or two floodings. Here it is also a question of the nature of soil. Sandy loam may not require so frequent cultivation while clayey soil must be dug over after each flooding. It is better to err in favour of cultivation than to err in favour of watering. Whenever you are to choose between digging and watering, prefer the former as it will be more beneficial. In my

own garden, at a rather rocky elevation, I do not get a copious supply of water throughout the year, but by free cultivation I make good the deficiency of water. This applies of course to established plants, as new ones require more careful nursing and watering.

Never put the hoe or fork into the soil when it is wet. Cultivation should only be done when the soil is friable and does not get clogged when worked. Nothing can be worse than working wet soils as in that case you only make it air-tight and cannot freely pulverize the same.

I cannot speak too highly of cultivation. It helps to retain the moisture at the roots, it aerates the soil, and exposes the same to the most beneficial rays of the sun. It also helps to keep the soil sweet. It does no less benefit than good manuring and helps to keep out weeds which roses much dislike. It also checks white ants, the great pest in the tropics. Rose growing without cultivation is a hopeless idea. Cultivation, that is stirring of the beds, should be done every fortnight during autumn and winter. If the soil is greasy and heavy it must be done when the soil is fully friable. In such a soil you should have more than one cultivation after each thorough watering. While cultivating the beds it is better not to reduce the soil to fine grains as by so doing you exclude more air and the sun's rays. Leave the soil to the size of large gravels. Go on cultivating until you feel the soil has been thoroughly pulverized and then give a thorough soaking. Repeat this process as many times as you can in the autumn, winter and spring, and best results must be yours in all tropical situations.

In a recent publication of the National Rose Society of England on "General Cultivation" it has been stated:—"The old idea that to 'keep the hoe going' conserves the moisture in the soil is a fallacy, excepting that weeds take food from the soil and also account for loss of moisture by transpiration, it is only in this way that hoeing may be said to conserve the moisture in the soil". It follows therefore that if there be no weeds or if the weeds are pulled out as soon as they grow, it is a fallacy to "keep the hoe going".

There are many members of the above mentioned Society in tropical countries so this point should be discussed here. I have

no practical experience in that part of the globe which is considerably bereft of sunshine in comparison to even semi-tropical and arid situations, far less to of speak tropical situations under cent per cent sunshine which sucks up the moisture. Roots draw moisture from the land and, after the necessary substances dissolved in water are retained by the plant body for its nutrition, pure water is thrown out by evaporation through the leaves. During very strong sun luxurient growing immature growth is found, in the tropics, to droop. This may be marked particularly in leafy vegetables with luxurient growth but they again become crisp near about sunset. This happens when evaporation through transpiration is greater than the supply taken up by the roots, so it is perfectly true that there is loss of moisture by transpiration. But this is only a part of the picture.

If we replenish the loss of moisture, through transpiration, by balancing it with constant supply of water we shall gradually make the soil too bad for the roses.

Not only through transpiration but also through capillary attraction moisture is drawn out of the soil by the sun's rays. If we dip one end of a strip of blotting paper in ink-pot we find the ink rushing to the upper parts of the paper. This is capillary attraction caused by innumerable hairy tubes. The Latin word "Capillus" means hair. Innumerable hairy tubes exist in the soil and through these moisture is evaporated, under clear sunlight, even if the land be without vegetation and without a chance of transpiration through leaves. By cultivating the soil we not only increase the diameter of the hairy tubes but partially dislocate them and thereby reduce capillary attraction. If we practise hoeing on a part of moist fallow land we shall find that it does not dry up so soon as another left intact without hoeing. So it follows that by cultivation we help the land to retain moisture by disturbing its physical property of capillary attraction. Next comes the question of nitrification of the soil which is very vital for the health of every plant other than those that grow in a marsh or a submerged land. Nitrifying bacteria, present in the soil, cannot act without enough of sunshine, moisture and free access of air into the soil. Cultivation, that is raking up a few inches of surface soil helps free access of sunlight and air by making the soil porous. Wet or water logged soils do not help

nitrification to an appreciable extent. So by hoeing and turning the soil, at intervals, we not only help in conserving the moisture to some extent but also have the soil nitrified through sunshine. And therefore hoeing must not be avoided at least in all sunny places. This hoeing is, of course, not to be of such a depth as to shake up the plants near their very base; the depth is to be reasonably increased according as the hoe or fork is away from the base. By reasonably deep cultivation of beds of established roses you not only aerate and nitrify the soil but also allow water and manure to quickly reach the roots below. The merits of cultivation, either by hoeing or by forking, may be somewhat questioned by recent scientific theories but, for situations enjoying full sun, cultivation is of much more practical use than theories.

During the summer months very dry winds blow in many localities, specially in the upper plains of India. The winds dry up vegetation and roses languish. Copious watering is most helpful at such times, but it is not everywhere available in sufficient quantity. Insufficient water given irregularly is almost fatal at that time specially in dry localities where the soil is not retentive. The heat becomes so very intense that stems touching the ground get burnt and black in contact with the heated soil. The soil should then be removed to some extent so as not to touch any healthy new growth. Regular soaking with water and occasional forking of the surface when the soil is friable are the only means to adopt. This will save many roses and help them tide over the worst part of the year. Any manure or manure water to force them in any way will be fatal to them at these times. Roses on their own roots must be regularly watered when the heat is intense. They cannot bear so much heat as the wild understock of a grafted or budded rose can.

When the trying summer is over the monsoon breaks with heavy torrents in many localities. Ridges made round the roses or their beds should be made level. This will prevent any surplus water to stand around them. One must be very careful about drainage and see that the beds do not get water-logged. In large beds temporary surface drains about nine inches deep and one foot wide should be dug and the soil sprinkled around the trees so as to make the beds just a little sloping towards the drains.

Weeds and grasses very freely grow during the rains and they should be carefully uprooted. No cultivation should be done now, drainage and weeding being the only necessities.

One of the most necessary cares in successful rose growing is the free use of the secateur. As soon as your flowers wither they should be cut off and the flowering shoots cut back to a strong leaf bud which you will find between the third to the fifth leaf. The leaf bud will produce your next flowering shoot ; so it should point outwards from the centre of the plant. Flowers on no account should be left on the plant after they have lost their charm. They injure existing buds, apart from being unsightly themselves. When plucking flowers use the secateur or a sharp pruning knife. Breaking or tearing off a stem instead of making a clear cut causes considerable injury to a plant. Often during the growing season and flowering period, free-growing plants, that are properly cared for, gradually become too bushy with crowded shoots. Some shoots become old and exhausted. Such shoots should be cut off as they take away some sap without any appreciable result and only help to starve growing new shoots. All such unnecessary shoots should be thinned out and the centre of the plant kept clear for the purpose of inducing and helping new growth which are the greatest assets in roses, more particularly so in the ever-blooming varieties which have a long flowering season in the tropics.

Another important thing that your roses require is the cutting out of growths of wild roses on which the cultivated rose is budded or grafted. When your plants are in growth they will often shoot out from the base or from under the ground if the tree is grafted or budded low enough, as it should be. Beware that you do not cut out basal shoots of the cultivated rose instead of the understock, that is the wild rose. These basal shoots are the best assets and often produce the finest flowers. By careful study you will easily distinguish the wild growth from the real plant. The wild growth has a different type of foliage and should be cut clear away from the base whence it sprang. Dig out the soil to find out the place from whence it sprang. By twisting on one side the wild growth will break off but if it does not, cut it clear off the place it sprang from. Many beginners do not eradicate this wild growth, and I have often seen the

fatal result. The real plant is starved to death and a very healthy and bushy plant of the wild rose is nursed in all seriousness. They produce only growth at the cost of flowers, and often the nurseryman is accused of supplying a bad plant that never flowers. This should be guarded against. If you cannot, like many people, distinguish the real plant from the wild rose as soon as it springs up, it is better to be on the safe side by allowing the same to grow a little and clearly show the difference of foliage, and then to cut it off. The illustrations of wild roses will help beginners to identify them. I have illustrated four types which should be studied. Please note that book knowledge has got to be combined with practical knowledge that has got to be acquired through experience. For easy identification it is said that the wild rose has seven leaflets in each leaf. That is true but there are some cultivated varieties, flowers of which are very pleasing, which will also produce seven leaflets, when well grown, on strong shoots as for example climbing Orange Triumph, climbing Peace, Orange Triumph, Frensham, Independence, climbing Shot Silk, Karl Herlest, Rishi Bankim etc. The last named produces even nine leaflets so if you do not learn to distinguish between your cultivated rose and its wild understock there will be great loss if a good shoot of the cultivated rose (the flowering one of your choice) be cut off by mistake.

CHAPTER III.

CUTTING AND DESPATCHING ROSES.

A rose grower may feel the necessity of cutting rose blooms for his personal use in house decoration or table decoration. The necessity of cutting them for presentation among friends may also arise.

A beginner often cuts the flowers almost full blown in which stage he thinks them to be at their full glory. It is all right if such flowers are used immediately either for decoration at home or for presentation to friends nearby. If the flowers are to travel to a friend at some distance they will in all probability reach him past their best condition or decidedly in a spoiled state.

The best stage in which a flower should be cut is its bud in its just opening stage. Even if you utilize them for your own use they last longer in your vases and retain better colour and freshness which they will in all probability lose sooner under a hot sun. By cutting flowers in that stage you ensure greater life to them, and if properly watered they will partly develop while travelling, and so look well by the time they reach your friends. Cut-flowers have a better decorative effect in the vase if they are on long stems. Unless a rose is a strong grower with long canes, next flowering will be delayed if you cut them with enough of lengths. The longer stem leaves a more dormant leaf-bud and it takes more time for the plant to throw out a lateral shoot from the leaf-bud. Cutting should not also be made with too short a stem which will induce weak laterals and poorer flowers if not too weak laterals to flower.

While out to cut flowers it is better if you have a bucket of water very near at hand or carried along with you. As soon as you cut the flower dip the stem in water up to the neck of the flower. The sooner you dip in water the more the life of the flower is ensured. Let the flowers remain in water for at least half an hour if they are to be sent out.

Flowers for use should never be cut under a strong sun. It is better to cut them in the early morning when the dews are

still on them, or late in the afternoon when the sun is about to set. By cutting early in the morning you prevent any of the delicate colours from being bleached by a strong sun. After collecting your flowers and after properly watering them keep them in a bucket of water and in a dark closed room if not required for immediate use. Do not put too much water on the petals as there is every risk of staining them and forcing them to rot. A light sprinkling of water will be enough for the petals ; water from a spray is all the better.

When you want to despatch your flowers to a distance you will have to cut them and take care of them as stated above. Then you will have to see to their proper packing. If carefully packed, roses can reach in a presentable condition even after travelling for 48 hours if the climate is not too hot for them.

Careful packing is necessary for guarding the petals against being bruised or dried up in transit. Thin oil paper or tissue paper will be required for the purpose. It is better to pack in a box. Give a lining of paper on the sides of the box and its bottom, ordinary newspaper will serve this purpose. Then hold a flower and carefully wrap it with paper. While wrapping be careful not to fold any petal through pressure specially those with reflexed edges. Place your thumb and forefinger in a circle around your flower so that you can easily put all petals into desired position with a slight pressure. Thus holding the flower with your left hand wrap up the thin paper around the flower with your right hand. Place your flowers, thus wrapped, carefully in the box seeing that you do not pack them too loose to enable them to move about. A box which has not much depth will be best, nine to twelve inches being sufficient depth for a box to carry flowers in good condition. Do not place much more than about six flowers one upon another as by so doing you put too much weight upon the lower one which will be malformed. After you have placed all your flowers in position, place a wet tissue paper on the top, then cover again with newspaper or such other paper, and close the lid after sprinkling some water on the paper. While closing the lid see that there is no blank space, if any it should be filled up with flowers or paper shavings in the absence of the former. Thus your flowers will safely travel overnight. If roses are to travel a longer distance they should

be cut in a little more closed state, not too closed, however, to prevent them from opening. A little common sense and experience will tell you in which state the flower can be cut. Feel the rose bud, before cutting, with your thumb and forefinger. If it is still quite hard and the colour pigments are still undeveloped it will not open in a cut state. If you tie up a little damp moss around the cut portion of your flower stems they will travel in a better condition.

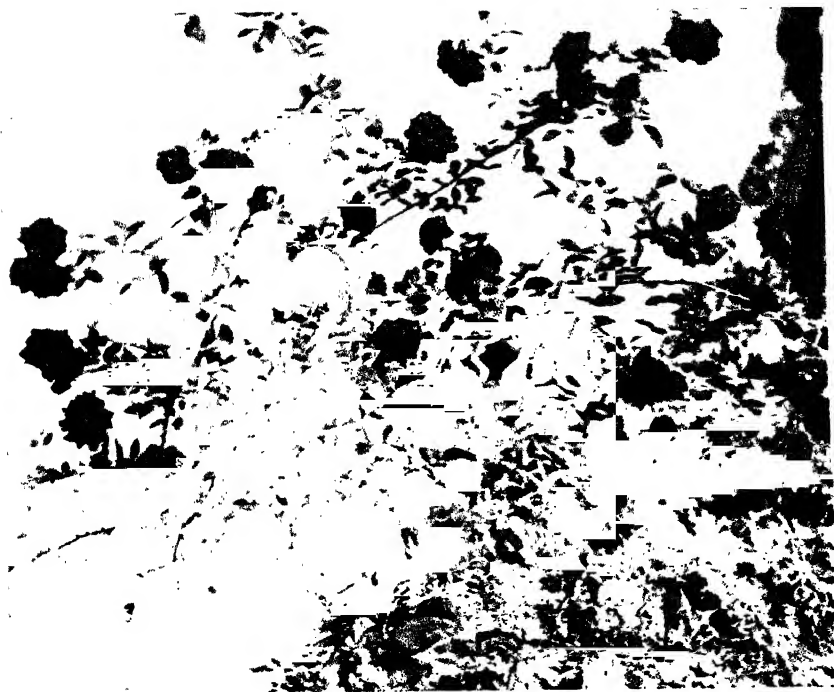
By keeping the flower stems in water diluted with a little aspirin or common salt greater lasting capacity is imparted to the flowers in your vases. They should have fresh water every morning when a fresh slanting cut with a razor sharp knife should be made at the end of the stem. Flowers will die quicker if kept under the breeze of a fan.

Knowledge about the particular variety helps greatly in cutting it at the right stage. A semi-double or nearly single rose will have to be cut much earlier than a full or fully double rose. Semi-double or single roses are to be cut when the petals have just shown its colour but have not opened at all. In case of double varieties they are not to be cut when the bud is still quite hard and petals are closely wrapped without the least opening.

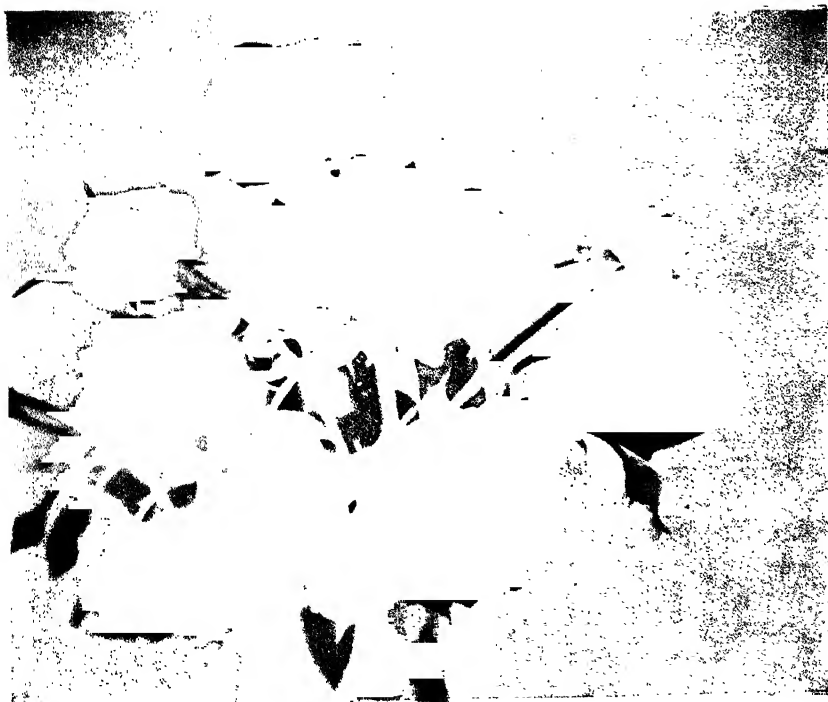
Exhibiting and judging.

Rose exhibitions are very helpful in encouraging cultivation of roses and in growing them to perfection. It is often heard that people cut so very good roses in their gardens but exactly how good they are in comparison with others has to be proved in an exhibition.

It is often said that exhibitions give wrong impressions of flowers which are extra forced for competition, and that many varieties suitable for exhibition are most unsuccessful as garden roses because they do not produce good flowers under average care. Even admitting this allegation a rose lover should appreciate the brighter side and always support exhibitions. By doing so he has the enjoyment of showing others how successfully he can grow the flowers, and also see for himself how other flowers have been brought to perfection by cultural skill and what other



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improvements can or should be aimed at. It is not exactly the fact that only such varieties as are suitable for exhibition are staged in great numbers, still less so now when hybridization has furnished us with so many sorts suitable alike for garden decoration and for producing specimen blooms fit for exhibition boxes. Apart from this, exhibition educates our mind about proper use of the rose for the dinner table, drawing room, bouquets and various other purposes. There is the added advantage of getting acquainted with new or hitherto unknown varieties, flowers of which an amateur with a small collection would otherwise have never come across. I must admit myself that even after growing thousands of roses in my own garden I have always learnt something from each exhibition I had the pleasure of either competing in or judging in. There is no great secret in being a successful grower if you are patient, and if you carefully study your roses by observing what they exactly require. Never lose patience if you are unsuccessful, but try again. Some roses have individual peculiarities; ordinary common sense and experience will soon help you to observe that. When you have gained this knowledge you will attend to details, and discard your whims and unsuitable methods if there be any.

It is expected that you, as an exhibitor, know how to grow roses successfully and to bring the blooms to perfection, also how to cut the blooms and when to cut them in a proper stage. There cannot be one general rule for this as an overfull rose like La France or Marechal Neil will not require to be cut in the same stage as Peace or Frau Karl Druschki.

While exhibiting you should know what are the essential qualities of a good rose, and what is a bad one. I give below the rules for judging a rose as was laid down by the National Rose Society of England:—

"A good rose. The highest type of bloom is one which has form, size, brightness, substance and good foliage, and which at the time of judging is in the most perfect phase of its possible beauty.

"A bad rose. The following are serious defects in a rose bloom: faulty shape, confused or split centre and faded colour; also being undersized or oversized to the extent of coarseness or over-blooming.

“Form shall imply ; petals abundant and of good substance regularly and gracefully arranged within a circular outline, and having a well-formed centre.

“Size shall imply that the bloom is a full-sized representative specimen of the variety.

“Brightness shall include freshness, brilliancy and purity of colour.”

To make these definitions more clear a rose of good exhibition form should be full as opposed to shallow or semi-double. It should not show the centre. The sufficient number of petals should be regularly arranged.

The definition of size is, I suppose, quite clear.

In colour you should discard all dull reds like slate red, dull magenta purple fading to an objectionable bluish tint, as also washed-out pinks.

The following points as regards judging are also worth knowing:—

“All roses exhibited in competition shall be from plants which have been grown by, and have been the exclusive property of, the exhibitors for at least three months immediately preceding such competition.

“All roses should be exhibited as cut from the plants. Artificial aid of any kind is strictly prohibited, with the exception of wire or other supports, which may only be used to keep the blooms erect. A bloom left tied shall not receive any point from the judges. The dressing of rose blooms is prohibited, and the judges are instructed to treat a bloom, dressed so as to alter its character, as a bad bloom. The insertion of any additional foliage will disqualify the stand. All roses shall be correctly named.

“In all classes in which three blooms of each variety are required to be shown in boxes, the three blooms shall be arranged triangularly.”

For exhibition roses.

“Roses shall be judged as they are staged at the time of inspection. No other consideration whatever shall be admissible. Three points shall be given for a high-class bloom, two for a

medium, one for those worthy of consideration and one or even two extra points for a very superior bloom. No point shall be allowed for a bloom left tied by an exhibitor.

“In the mixed classes, Tea and Noisettes shall have no especial favour shown to them.”

For decorative roses.

The exhibit of each variety, whether shown in vase, stand, basket, or a specified number of bloom in box or otherwise, shall be considered as a unit.

“For each unit points shall be given as follows:—

	Points.
Brightness (colour, brilliancy, freshness) ..	3
Form of flower (and of truss in cluster roses) ..	2
Foliage	2
Arrangement	2

“Extra points may be given for a very superior unit. The relative size of blooms of different varieties shall not be taken into consideration.”

For the exhibit as a whole:—

“Diversity of the varieties, at the rate of one point per unit setting up, at the rate of one point for every three units. Points should be taken off for disease (of flower, stems or foliage), faded or past blooms, and overcrowding either in the exhibit as a whole or of the foliage or blooms in each unit or truss.”

Exhibits.

“Hybrid Teas shall be regarded as Hybrid Perpetuals in competition, unless specially excluded by the schedule, and may not be shown in the classes for Teas and Noisettes.” “All roses should be correctly named. The showing of duplicates, either under the same names or under different names, shall disqualify the exhibit. Judges must look closely into this. The accidental incorrect naming of blooms, if there be no duplicates, shall not disqualify.”

There are various other rules as laid down by the National Rose Society to guide the judges. Only such rules as are im-

portant for exhibitors have been quoted above by me because the judges must know the rules concerning their duty and it is useless to increase the bulk of this book by mentioning such rules.

From the above you have been aware of the necessities of a successful exhibit. You should have the practical experience of a competitor to be fully aware of all points, as experience will guide you better than any textbook.

A few hints on the necessary care of bringing up good exhibition blooms will not be out of place, I suppose.

The methods of culture and care in growing roses, which have made myself successful, have been already stated in previous chapters. By following them carefully you are expected to produce good blooms. Merely producing good blooms may not be sufficient to ensure your success in competitions. You must carry them carefully to the show and stage them there in the best possible phase of their beauty.

You should take some extra care of your blooms some time before the show.

I take it that you have properly timed your roses to produce flowers as near the show date as possible. When the new shoots have been crowned with flower buds thin out all shoots which are found blind or sickly on close observation. You may often find some small shoots which although somehow managing to produce buds are not expected to produce good flowers. Cut out all such shoots clean off the place they sprang from, keeping only those which have plump healthy buds. Retain the central bud and ruthlessly disbud all the rest as soon as you are sure that the central bud has a faultless shape and does not show any trace of divided centre. With careful observation and experience you will easily detect a bud which will produce a malformed flower. It is safer for a beginner to wait a little and then disbud, making sure that there is no risk of having a malformed flower. Through your endeavour to produce the finest possible blooms, it is quite possible that you have overforced your plants with heavy manuring with the result of many malformed flowers. Even if you are not sufficiently experienced a little patience will enable you to detect such defect. In case of varieties which are not overfull you can unhesitatingly disbud, but in case of quite full varieties, which do not open out freely and



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ETERNAL YOUTH



FLAMING SUNSET



HAPPINESS

get balled petals in the rains or under heavy dew, it is safer not to disbud until the buds are beginning to show colour. In such cases disbudding may be unnecessary, the more so if the weather is not warm enough to induce the blooms to open naturally.

From the time you are beginning to secure good buds for the show you should properly help them with liquid manures. Raw cow-dung, sheep droppings, soot, rotten fish or fish meal (powdered fish) are very helpful as liquid manures, but you must not apply the liquid stronger than the colour of "weak tea". Sufficient doses of pure water must also be given, say two doses of pure water after each liquid manuring. You should never forget cultivation as, if you do, you close the soil and very little liquid reaches the fine roots below, thereby starving your plants and in most cases making the soil sour.

After every one or two thorough drenchings either with pure water or liquid manure wait until the soil is friable and then cultivate the beds allowing sun and air to play their part in improving the soil and adding fresh energy to the plants. Go on repeating this process and good flowers must come out.

Then comes your duty to guard the flowers against rains, heavy dew and the bleaching rays of a bright sun.

You will improve your flowers by some protection. Lightly tying them up with a fold of soft tissue paper will help them a good deal in retaining the brightness of their colour and will prevent them from opening out too soon. Do not put any wrap on an undeveloped bud.

Give some protection like a cap above your flower. Ordinary cardboard boxes of sufficient dimensions will serve the purpose. Tie these protections tight on stakes. Your flower stem too should be held tight, so that they may not move about in the wind. If you are not careful about this, you run the sure risk of your best flowers being spoiled by chafing against the protection. Do not place the cap too close to the flower as by so doing you run greater risk of the petals being injured.

You should take proper care about cutting your roses and carrying them. If possible do not leave this work to any one else but see to it yourself. The flowers too should, if possible, be carried by you personally and arranged under your personal supervision. The less you can leave the work to your gardeners

the better. Here I am tempted to quote the saying of Admiral Aaron Ward as published in the *American Rose Annual*, 1918: "You may be rich enough to buy a rose garden as big as the garden of Eden—but unless you, with your own hands, participate to a greater or less degree in the care of your flowers, there may be a rose garden, even a beautiful rose garden, but it will never be *your* garden." Really there is no better innocent pleasure than gardening and I may say specially rose gardening. But I am going off my point.

Hints on cutting and despatching your flowers have been given in the previous chapter. See to your flowers two or three days before the show and go on making sure which flowers will be in the best phase of their beauty on the date of the show. If any show signs of quickly opening out tie them up with wool thread in tissue paper as stated above. Unless the weather is quite cool it will not be safe to rely on flowers held up by ties or protection for two or three days. Always make it a point to take a sufficient number of extra flowers, so that you are not outwitted when some flowers drop off, or some have faded colours.

Immediately after cutting flowers dip them in clear water and let the stems have a thorough soaking. Let them absorb as much water as they can through the cut portion. If you hold them on without dipping, the cut will be hardened and sufficient water will not be absorbed. In that case make another cut further up with a sharp knife and preferably under water. When you have to carry the flowers to a show from a good distance, that is if your flowers have to travel, immediately dip in water. This will enable them to stand better.

The last finishing touch lies in staging the flowers carefully. Always place your largest blooms at the back, and the most perfect flowers of intermediate size in the middle. The smallest blooms should be placed in the front row so as to make a well-balanced effect. Be careful that the flowers show themselves boldly and look at the judge. You may have some flowers with drooping habit, wire supports will enable them to show up their beauty. While staging step backwards and see for yourself whether any flower should be turned round to show itself to better advantage. After staging solicit criticism from others, do

not congratulate yourself on their praise but try to benefit by adverse comments, using, of course, your own discretion in any case. Do not use a flower only because it has huge size. A huge flower with its centre showing the anthers or with coarse shape and dull colour is of no use. Also do not use a malformed flower only because it has a bright telling colour, or is new. Carefully study the colour scheme. Do not stage flowers of one or similar colours together as they help each other to go down in effect. For example, two or three flowers of red shade will never be telling but if you stage a yellow by the side of a red or a purple by the side of a golden one, they will help each other to look brighter. Place your finest-coloured and finest-shaped roses in the middle row as stated above because this is the most favourable position with a good setting in the back and foreground. Too much of leaves in the flower stem often help to wilt the flower sooner, so keep only a reasonable number. Some of your roses may be deficient in foliage and it should find a place by one which has sufficient, but never add extra foliage, which will disqualify you. You may use green moss under your roses as this gives a very good effect. Examine the flowers with a keen eye and if any seem to be showing the centre by judging time replace with one a little more closed.

Some of your flowers will require a little dressing in arranging a twisted petal here or a pressed petal there. Some bruised or stained petal will have to be taken out but while doing this be careful that you do not overdress to the extent of changing its natural shape, as by so doing you run the sure risk of having one of your points deducted. You may have some blooms tied up, take off the ties as late as possible but be careful that the flowers do not give way as soon as the ties are taken off. It will be so if it is full blown but retained only through the tie. If you leave it tied up you get no point, so better have it replaced if you cannot rely on it.

Correct naming is another necessity but one is often confused about names of different varieties while he is busy staging them. It is better therefore to have the names noted while you cut your flowers. Write the names in pencil and attach the named card to your rose before you cut the same. This will avoid any trouble. If you write the names in ink they will be effaced in water. Be

sure that you do not stage one variety with two different names as that should disqualify you. I have attended some exhibitions in this country where no importance is attached to the naming of varieties, on the excuse of beginners being not conversant with correct names. I may say this frustrates to a considerable extent the purpose of an exhibition. A variety found to be attractive and worth having cannot be identified without its name. There must be naming in spite of mistakes which will, in due course, get corrected. The saying "A rose by any other name would smell as sweet" is for the poet and never for the rose grower. It is a pity that authorities of some important exhibitions neglect this vital point. Every rose lover should stand against this inaccuracy.

Better avoid a position with very bright light. One with a soft mellow light is the best place. Before leaving your roses for judgment see that there is sufficient moisture around them or better let them have a light sprinkling of water.

CHAPTER IV.

INSECT PESTS AND DISEASES.

There are various enemies of roses and the National Rose Society of England has published a book of no less than 165 pages devoted to this subject alone. My readers should not be alarmed at this because in the sunny climate of India there is less risk, still less if healthy growth and proper cultivation be maintained. If the plants have a strong natural constitution or are kept in a good state of health, they are much less susceptible to disease. Everybody will observe that the wild roses, will grow on very happily when many cultivated types suffer. Even out of the cultivated types it will be found that some class is much more unhealthy in comparison to others; as for example the purer Hybrid Tea and the Hybrid Perpetual are quite healthy, while the Pernetianas languish. This is due to the fact that roses which are natives of places with entirely different climates become much more susceptible to diseases owing to the unsuitable conditions. There is also another cause. If a rose is by nature unhealthy, or if it has been propagated from a diseased stock, it is natural that your plants start under a handicap. It is necessary therefore to select varieties which are known to be of successful types and to get healthy plants even if they cost a little more.

“A stitch in time saves nine”; so you should look out for insect pests and diseases and stop them before they can increase.

The Leaf-rolling Sawfly, the Greenfly or Aphides, Caterpillars, White Ants, etc., are some of the serious insect pests and Mildew, Black Spot, Rose Rust, etc., are some of the serious fungus diseases.

There is no need to describe in this small chapter the life history of the various insect pests or the full details about the various diseases due to parasitic fungi. I think they would to some extent bewilder the beginner. Anybody desirous of having fullest details may buy books specially written on the subject. My intention therefore is to concisely deal with the principal difficulties generally met with, and narrate their prevention or cure.

Sometimes during the rains, or when the new shoots appear after pruning, it is found that the tips of fresh growth are eaten by some pest which cannot be traced. If this is not checked all chances of flower are gone, as the very growing points are destroyed. The havoc is done by types of Caterpillars or Slugworms which are about an inch in length and very slender. They feed upon the growing points specially at night, and hide themselves during the day-time within leaves which they paste together with a sticky substance they produce. They are very agile and will try to jump out as soon as their leafy nests are broken open. Unless carefully detected they will jump out, be lost among leaves, or will lie curled up in the uneven soil. Search them out. The safest course is to press the leaves first and crush them therein. It is not possible to resort to such hand picking in large collections. In such cases the pests can be destroyed by poison. The invention of DDT has created wonders against insect pests and there is no more need of handling the risky stomach poison 'Arsenate of Lead' for spraying on the plants. At present there is the Plant Protection Department run by the Government. This Department has branches in Districts and even in many Sub-Divisions in India. You will have every help in eradicating insect pests by spraying preventives at nominal costs. If you want to have your own arrangements you can purchase a Duster and a Spray for insecticide powders and insecticide lequids. Gammexane used by a Duster is effective if applied in the evening or early morning when the dews are on the foliage. Gueserol is also very effective as a lequid spray with slight addition of Pyroclad; the Plant Protection Department can supply your requirements and will advise you about the proportion. A very effective spraying is by Endrin, a B.O.C. production and their chemical department will gladly help you. There are many other varieties of Caterpillars which feed upon the fresh growth even during the day. The above process is the best preventive for them. Hand picking should also be resorted to. Scurvy Rose Scale and Brown Scale attack the stems or some spot on your rose. These are very harmful. The disease can be easily detected from the tiny specks in scurvy-like patches. They must be prevented as soon as detected otherwise the pest will soon increase. Spraying with a strong decoction of tobacco mixed with

soap will prevent them. The tobacco decoction and soft soap if applied with a brush on the affected parts will be more effective. Neglected plants have been found to be more susceptible to these. Scale insects can also be eradicated by rubbing over them with a tooth brush dipped with Mathylated spirit. Mealy Bug is another pest which attaches itself to stems and under side of leaves. They are white wooly looking waxy things and are to be destroyed by thorough rubbing with Mathylated spirit by a tooth brush or paint brush.

Sometimes rose leaves are rolled up by an insect and the leaves cannot help the growth of the plant with their proper function. Fortunately, however, this pest does not generally appear on plants which are not neglected. Hand picking is the best remedy for them, as also spraying with a decoction of strong tobacco.

Of the Aphides and Greenfly there are numerous varieties, but fortunately they do not give much trouble every year in the plains of India. They appear early in spring and are of very small size. They feed on the flower buds and growing points. Spraying with strong tobacco solution, or dusting tobacco powder on the affected parts, is effective. Several types of Grasshoppers cause great damage by eating the growing points and flowers. They are mostly of grass green colour and are something like a small locust in appearance. They cannot be hand picked as they are winged and fly away.

Occasionally a type of insect called Rose Slugworm eats upon the epidermis of the leaves, turning them to white and forcing them to shrivel and die. The plants are thus disfigured and growth is affected. The burnt ends of your cigars boiled in water and the solution sprayed on the foliage will stop these. This solution will be effective against Aphides or Greenfly. An ounce of soft soap boiled in five gallons of water and mixed with half an ounce of nicotine will be a very effective spray against this pest, as well as against Leaf-rollers and most other Caterpillars.

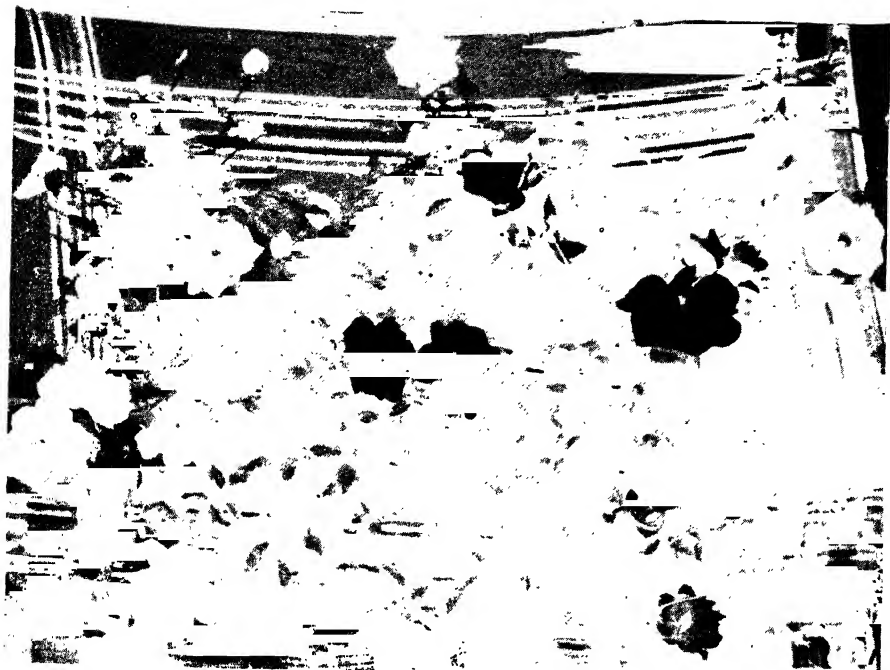
The Rose Beetle and Cockchafer are sometimes epidemic. They are generally in excess every third or fourth year. The adult chafers damage the leaves and the young ones (larvæ) damage the roots. Naphthalene powder, sprinkled about two to three ounces per square yard and hoed in, will kill the young

ones but adults will have to be hand picked. Once I had to hand pick these during the night as very few of them could be seen during the day. Since I am having the modern insecticides sprayed, whenever needed, the insect pests are effectively prevented.

Another type of insect pest often appears at times. They prepare their nests by gluing together thin dried stems and fix them up to growing shoots. They are a type of Caterpillars and devour the leaves. They are to be hand picked and crushed.

The most troublesome enemy in the tropics is the White Ant. Nothing seems to completely eradicate this pest. They are almost in every soil and abound most in sandy reddish soil which is one of the best for roses. None of the much-talked-of old remedies were fully effective in checking them for any length of time. Newly-planted trees and weak trees are more attacked than strong, healthy, well-established plants. They often eat away the bark of the rose plants, quite undetected under the ground. Merry-looking plants suddenly seem to wither, and if a little soil round the stem is removed you will invariably find the bark cleared. Although there remains little chance of saving the plants, the soil should be immediately cultivated and any of the pests found be killed; the plants should then be carefully nursed and watered; they should be shaded during hot sunshine and some of them may live by sending out fresh roots from above the affected part. The affected trees should be nursed as new cuttings.

It is necessary to dig the rose beds all round to the depth of at least two feet before planting. In that case all the nests of the pests are destroyed and the new plants may find time to get established before the pests are again there. Even this will not suffice as they will often come within a short time to feed upon the decayed manures, etc. The powder Aldrin, prepared by B.O.C., is very effective against White Ants. The powder should be lightly but closely sprinkled on the soil and dug in. This is effective for a few months. The I.C.I. preparation "B.H.C." is of DDT type and has been used as White Ant preventive. This preparation and Gammexane causes reaction on the rootlets and should not be freely used in the soil. A very effective remedy is as follows:—When cow-dung manure is mixed



RAJA RAM MOHAN (A plant in bloom)



DEOGHAR BABY



DR. BUDHEN



CHRYSLER IMPERIAL

with the soil the manure is generally powdered and passed through a sieve. One pound of Liver of Sulphur (Flower of Sulphur) should be very thoroughly hand mixed with twentyfive pounds of manure powder and that will act as a preventive of White Ants. If existing rose beds are attacked with white ants a mixture of Liver of Sulphur with wood-ash or cow-dung ash, in the same proportion, will drive away the White Ants if the mixture be closely sprinkled on the beds and forked in. When your plants are grown up there is little risk, and regular cultivation will keep them away in addition to the helping of plant growth.

In the lower portion of aged plants, as also on the cut portion of a newly-pruned stem, a type of insect bores holes at times. They can be easily detected from the powder of the wood in the stems. Run a wire down the hole and kill the insect. In case of newly-pruned stems they should be cut down to the point up to which the insect has bored.

Diseases of vegetable origin due to parasitic fungus, etc., are less troublesome in our sunny climate than in the dull cold climates of Europe and other places. Mildew, Rose Rust and Black Spot are the diseases of importance. Over-manuring, sudden change to extremes of temperature, and neglect of proper cultivation are the main causes of such diseases. Some varieties are naturally more liable to disease partly due to a bad constitution.

Mildew appears on the leaves and stems. At first whitish or greyish spots are seen on the leaves which spread and form patches of powdery mould on the surface of the leaves. If the weather be cold and damp and disease be not remedied, immediately the whole tree will be affected, the injured leaves will fall off, the flower buds will be damaged, and fresh growths will be seriously handicapped. If this is not detected, neighbouring plants have the serious risk of being attacked. Very sudden fall in temperature, a damp, cold or close atmosphere, combined with over-manuring, are favourable to this disease.

Infected leaves and branches should be cut out and burnt. The attacked roses should be dusted over with flower of sulphur. Spraying with lime sulphur and Bordeaux mixture is also advised. It is better to spray occasionally with a light solution of soft soap, adding a little flower of sulphur. This will keep the plants clean

and will prevent mildew. Bordeaux mixture is a well known fungicide and can be prepared with a pound each of copper sulphate (blue-stone) and stone lime mixed up thoroughly with 10 gallons of water. The copper sulphate and lime should be dissolved and slaked separately with some water, and the remaining quantity of water should be added. It should be tested whether the blue-stone has been in excess. Dip a piece of bright iron for a few minutes in the compound and, if the blue-stone is in excess, there will be a deposit of copper on the iron. In that case add more lime as otherwise the copper sulphate will burn the foliage. It is better to have a slightly less proportion of quicklime. Use the mixture as soon as you make it and stir constantly while using as it settles down very soon and should not be left over.

Black Spot is another important fungus enemy which attacks mostly the grown-up leaves. The affected leaves show brownish-black spots of nearly round size but fringed edges. The leaves fall down much earlier than usual and, if neglected, the whole stem is defoliated. The tree without the help of its foliage gets weakened. It becomes unable to properly develop the leaf buds which are forced out to bear new leaves prematurely. In very acute attacks from this fungus parts of the stem, and, even the flowers, may be attacked; so it should not be neglected. The proper remedy is to spray at intervals with a solution of sulphate of copper or liver of sulphur in cases of varieties generally attacked by this disease. The affected leaves should not be left on the ground when they fall down. They should be collected and burnt as otherwise the disease may spread. All dried up rose leaves which fall to the ground should be picked out and burnt even if they do not seem to contain disease germs. This prevents many diseases.

Rose Rust and Rose-leaf scorch are partially similar in appearance. Rust has a deep orange-yellow colour which affects leaf stalks and parts of the leaves. The colour gets darker with age. Rust will be prevented if the affected parts are washed with a solution of methylated spirit. Dusting with liver of sulphur will also be effective. Rose-leaf scorch probably appears more in acute draught. Spraying with liver of sulphur will stop this. If roses are watered with a very weak solution of copper sulphate,

drenching both the bushes and the beds, this disease can be got rid of. Over-application will kill the plants.

Chlorosis is a type of disease in which parts of the leaves turn yellow or creamy white. Excess of lime in the soil helps this. $1\frac{1}{2}$ oz. of sulphate of iron per square yard should be forked in around the roses affected by chlorosis. This can also be remedied by watering the plant with a solution of sulphate of iron, the common 'hirakas' of the market, mixed in equal proportion with Epsom Salts. The affected parts should be also regularly sprayed with the same solution.

It should be remembered that strong growing plants, with proper care in manuring, watering and cultivation, resist most of the diseases.

There is a type of fungus disease which attacks the roots and causes decay of the rose. Growth of the plant is gradually affected to serious extent and the owner, getting worried, may try to invigourate it with further manuring resulting in further aggravation of the trouble. The leaves turn to pale yellow instead of the healthy green colour and inspite of all nursing and feeding the plant perishes.

Due to excessive application of unbalanced nitrogenous manure combined with excess moisture around the roots a white form of fungus covers some parts of the roots. It may have a bad smell like that of a decomposed matter and will in due course so seriously affect the roots that the plant dies.

Ground should be treated with powdered lime and wood ash which should be forked deep into the soil and watered when the excess moisture is evaporated. The fungus is known as *Trichoderma Viride*.

Manganese deficiency and Iron deficiency also causes paleness of colour in the leaves but roses do not so easily perish.

CHAPTER V.

PROPAGATION OF ROSES.

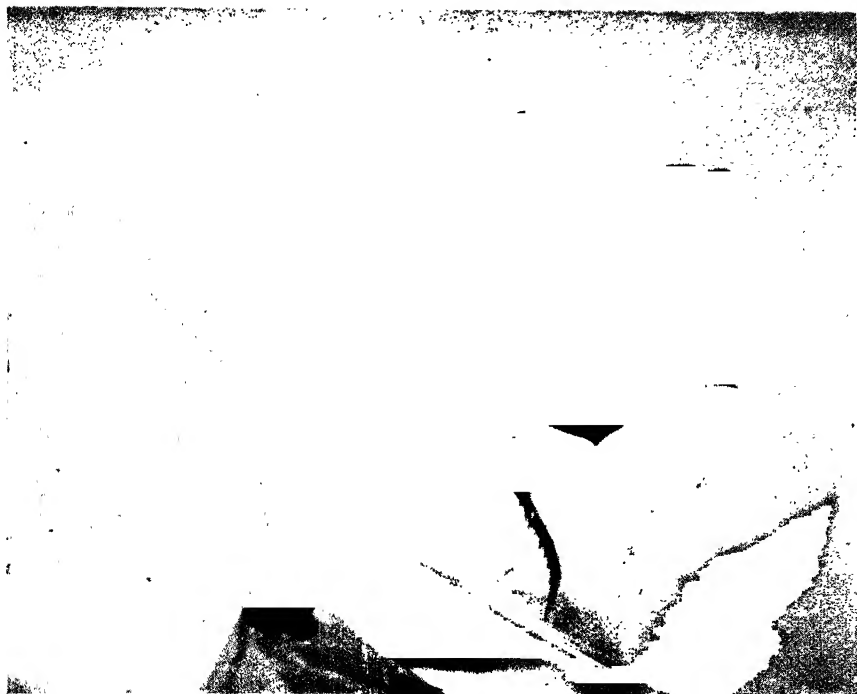
There are several methods of propagating roses and the following are the methods by which they are generally multiplied:—

1. Grafting or inarching.
2. Budding.
3. Cutting.
4. Layering.
5. Seed sowing.

A good rose is grafted or budded on to a rooted/ cutting or seedling of wild roses. The wild rose either produces flowers of no special merit or does not easily produce any. They have a strong vigorous growth and serve the purpose of understocks for cultivated varieties which are more delicate, and are either grafted or budded on them.

Grafting on rooted cutting is more common here and grafting on seedling is never tried locally for roses. Grafting on rooted cuttings is easier. For this purpose you should have a few bushes of wild roses in some corner of your garden. They can be grown as good hedges. Several varieties of wild roses are used for this purpose. The common Edward Rose, which produces semi-double pink flowers in bunches, grows freely from cuttings. Another variety very similar to this in habit but more bushy and rarely producing flowers is used in northern India for budding upon them. This is more vigorous and produces a greater number of canes per plant. In my experience by far the best understock for grafting in this country is *Rosa Multiflora* which in other parts of the world is probably called the "Seven Sisters Rose". It has seven leaflets in each leaf and is of rambling habit. The plants form huge bushes and can be easily trained on screens. They serve the purpose of a good hedge and during spring produce a burst of semi-double light pink blooms in clusters.

While preparing cuttings of the wild rose select such canes



SHREF MA



ZAKIR HUSAIN

as are fully matured but still green. Old canes and new canes should not be used for this purpose. The old ones will often die during the process of propagation and the new ones will not freely take root.

The suitable canes should be cut into small pieces about ten inches long and the lower side should have slanting cut with a sharp secateur. All the leaves should be cut off. The slanting cut should be very near a joint. A small bed with ridges on four sides should be prepared. There is no need of manuring the bed as the cuttings will safely grow in a good garden soil. After thoroughly saturating the soil the cuttings should be inserted about four inches deep in a slanting position. The cuttings should be closely inserted. The bed should be shaded from strong sun and may preferably be in a partially shaded position. Proper watering should be regularly continued. After about a month most of the cuttings will begin to grow and when they produce a few leaves they will be found to have formed their own roots. One or two cuttings should be lifted and examined about their roots. When rooted they may be put into very small pots of the size of about three inches. Commercial growers prepare a ball of earth around the roots. Moist earth can, with a little experience, be easily pressed into a conical ball around the roots. The earth should be just moist but not wet. After planting the new cuttings into small pots, or in balls of earth, they should be kept for two or three days in a shady moist place and sprinkled with a water as required. This resting will help them to recover from the shock of lifting. The rooted cuttings should then be planted in a nursery bed whence they will be gradually used for grafting. After at least a week they will be ready for operation. The plant to be grafted should now be examined and all its old, weak shoots thinned out; it should also be manured if not already done. The required number of rooted cuttings are now to be planted near the rose in such positions as to approach its stems. Stems of the rose should be held up in position by a peg pushed into the soil so that they may fit on to the understocks on which they will be grafted. With a sharp knife a slice should be cut off from both the rose stem and the rooted cuttings. The slices should be enough to take away the bark, with just a portion of the underlying wood, about an inch long and of as nearly the same proportion

as possible. The cut portions should then be united and tied up tight with a bandage of moist raffia, twine, or jute fibre. The union must be quite tight so that the cut stems look like one and have absolutely no gap. Wax may be put round the union to prevent sun and water from the wound. After about a month callus will form on the cut ends and they will begin to unite. In the hills more time will be taken. When the graft will be matured the bound part will be found to be a little swollen and entirely united. Then the graft is ready for lifting. First the stem, grafted on the understock, should be cut away from the rose tree that is being propagated. The cut should be close to the union. The rooted cutting or understock should now be lifted without disturbing the original ball of earth; if it is in a pot there will be no risk of this disturbance and the resulting damage. If the ball is disturbed, form it again by pressing around it a little more moist earth. Your new graft now lifted should be taken to a closed shady place and sprinkled with water. All the foliage should be cut off; it will prevent evaporation of moisture through transpiration and the new plant will be enabled to stand the shock better. A nearly dark room with moist floor will be the best place to allow your plants to rest in. A glass house or a glass frame will be good enough but everybody may not have it. Within a few days the new plant will recover from the shock. The wild rose cutting on which your new plant has been grafted should be cut off clean away from above the union so that henceforth it has the function of making root growth only. The new plant is now ready for planting out. It is safer to plant them in a nursery bed for at least a month before placing them in their permanent quarters. If sufficient individual care be not possible and if the planting season be on the wane, these new grafts should be left over in the nursery beds and planted in the next season.

Budding is a process commonly practised in the up country here, and also in other parts of the world. The budded plants in other parts of the world are very much superior to those found here. The main reason is the fact that the cultivated rose abroad is budded very low and almost on the roots of the wild rose grown for budding upon. Another very important fact about the advantage of the European climate over our local ones is the cooler temperature which forces the trees to rest and

to move in a dormant state without any earth for over a month. The stock has to be grown for some months before it can produce suitable stems for budding upon.

While preparing stocks for budding insert cuttings of the wild rose as advised for grafting. The cuttings may preferably be a little longer and when properly rooted should be planted out. Amateurs who do not want to part with their plants should plant out the rooted stock in their permanent quarters. If they are wanted to be removed here and there, it is necessary that you grow them in a nursery bed about one foot apart. Care should be taken to induce the stock to grow with one or two stems only or to cut back to induce new shoots to start. The best shoot should be retained for budding and the rest removed. Too sappy unripe shoots or too matured shoots, from which the bark does not easily open out to accomodate the bud, are to be avoided. The process of budding is to insert a dormant eye (leaf bud) beneath the bark of the stock. You must have a good budding knife which has a sharp steel blade and another blade of ivory or bone. The dormant eye should be selected from a healthy stem which has just dropped its flowers. All the leaflets should be cut away leaving only the leaf stalk which guards the bud. The leaf stalk should be left about half an inch so that the cut slice can be held with it. Hold the stem in your left hand, and insert the steel blade about half an inch above the eye (bud) you are cutting out. Press the blade down, gradually deepening below the leaf and bringing it out about half an inch below the eye (bud). The slice thus made will have a portion of the wood below the bark, and the cut should be deepest just below the dormant bud sheathed in the foot stalk of the leaf.

Now hold the slice upside down with your left thumb and forefinger. If the slice has been rightly cut the bark will slightly extend beyond the wood below the bud. The bark and the wood at the lower end will easily separate, if not a slight twisting or pressing with the blade will do. The bark will have to be successfully separated from the wood which is the most important work and means a lot. While the slice is being held in your hand press the right forefinger between the bark and the wood at the lower end, the right thumb nail and forefinger should hold the wood firmly, keeping the thumb nail on the

wood immediately behind the bud. The wood is now to be separated clearly from the bark with a sudden jerk. If the bark is properly separated there will be nothing but the bark with the inner soft green substance of the eye. That green substance is the immature growth which remains level with the surrounding bark. If this immature growth comes out along with the wood the bud is useless. For a beginner it is better to try a few operations with buds of some wild rose or any other rose that you can spare ; it is not a difficult matter but only one of practice.

The stock should first be operated upon. With your steel blade make a T-shaped cut, taking care that you cut the bark only and not the wood below. A gentle pressure with a sharp knife will do it. The ivory or bone blade should now be used to separate the bark from the wood. See that you cleanly separate without bruising the bark or tearing it. Immature or old stocks will not make a free opening and will prevent a successful operation.

The bud should now be trimmed at both ends and pointed so that it can be easily put into the opened cut of the stock. The lower end of the bark should first be put in the opened point of the T cut and steadily pushed in by holding the leaf stalk as a handle. It so happens that the bud does not enter freely ; the lower end can be gently pressed with the point of the knife blade and dragged in to fit close on the wood of the stock. The opened out sides of the cut will overlap the bud and should be bandaged with moistened raffia or jute fibre tightly and closely from below to above the bud.

To be on the safe side insert two buds on each stock, as if one fails the other may be successful. Both may be successful but if the upper one grows first the lower one will remain good enough for growing at a future date.

In the case of making standard roses the bud should be inserted on a mature lateral of a strong growing stock. The best season for budding is when the sap runs freely and the bark separates from the stock clearly and easily. You occasionally have this during the rains in high altitudes if the climate is dry but not cold, and generally from the end of autumn.

Cuttings of roses will take root in a good percentage if



SOOR DAS



KATHERINE ZIEMEI



TWO TYPES OF WILD ROSES



planted in the open ground or under glass. Strong growing varieties and wild roses are easily propagated in the open ground but delicate varieties will do much better if planted under glass.

It has been an erroneous idea among some of the professional and amateur rose growers that roses do not flower from cuttings. At times roses from cuttings prove to be more delicate than grafted or budded stocks without the help of a hardy wild rose as understock. There is the advantage, however, of never being troubled with suckers of the wild rose which, if not detected, will kill the cultivated rose in due course.

In moderate climates roses with their own roots, grown from cuttings, are quite as good as grafted or budded plants.

Autumn is a good time to strike cuttings in the plants. In the hills both autumn and spring time will suit. When roses are pruned many people desire to make use of the stems which are discarded only because they are useless. Careful selection will provide you with some stems which are still good enough. Select those that are of well-matured growth but not old and exhausted; preferably those that are still green and not russety brown. Take them if possible with a heel on, that is with a portion of the old stem on which they have grown as laterals.

Plant the cuttings closely in a pot of sandy soil. The pot can with great advantage be placed under glass. Bell-glasses are specially prepared for this purpose. Any large glass jar with its mouth wide enough to cover the pot or the cuttings in the ground will serve the same purpose. Under glass the moisture remains intact and prevents wilting. Watering under glass must be carefully done as rotting will be the effect if watered without necessity and in excess. In a cold climate, glass will preserve heat but in the hot plains they should not be under direct sunlight which will cause too much heat. The glass should be taken off at night and replaced in the morning before the sun is high up.

With inserting cuttings in the open I have dealt fully while writing about striking cuttings of wild roses for grafting. The process is all the same. In many part of the Indian plains White Ants cause great trouble. I have seen beds of cuttings seriously damaged after callus has been formed and the cuttings were looking quite promising. Precaution against White Ants should be taken whenever there is risk.

Another curious and pleasing process is the striking of cuttings in water and watching them grow. Cuttings from vigorous growing points should be placed in a bottle of soft water. A spacious wide-mouthed bottle will do and not more than two to three cuttings should be dipped therein. You must have the water changed by fresh supplies whenever you think that the water is foul. While changing the water, cause as little disturbance to the cuttings as possible and use tepid water. Place them in a shady but most lighted place and see that the cuttings are not moved about by wind or anything else. You will find that gradually callus will form, root hairs will grow, and you will in time get a new plant. They will not grow in hard water. Gruss an Teplitz has freely rooted under the above process. Laterals with heels on will root better.

Layering, although a process different from cuttings, produces plants on their own roots just as in cuttings. This can be most successfully done in the rains when moisture and heat help growth to a great extent.

Layering is arching a shoot, and sinking a part of it under the soil for production of root. Old shoots are not flexible and should be discarded. Mature shoots will be the best. In the process of pegging down you bring the top of long shoots to the ground. In this process you will have to bury, in the ground, part of the stem about one foot from the top. Bend the stem down to the ground and ascertain the portion which will remain buried. Make an incision with a sharp knife in the lower part of the portion which will be buried. Do not allow the knife to cut through and take the slice away, let the other end remain on the stem. Bury this cut portion in the soil about three inches deep and fix it with a peg run on both sides of the stem and the soil pressed hard. The top of the stem down which you have made the incision is to be made straight with a support if necessary. The straightening of the upper part of the stem will leave the wound gaping below the soil. The cut wood will be in contact with the soil and will, within a short time, produce its own roots. This stem with its new roots below will be a separate plant when cut away from the parent tree. If the wound be not left gaping it has a chance of uniting, so insert a gravel or chip of wood to keep the cut open.

Seed sowing, although a successful method of propagating roses, should only be practised in quest of new varieties. Roses do not come true from seeds. Where seedlings are grown for the purpose of raising new roses, they are budded or grafted on an understock to produce the exact qualities possible of the seedling. Therefore you should sow seeds of roses not for the sake of multiplying your stock but for the sake of new varieties, full details of which are given in the next chapter.

CHAPTER VI.

THE RAISING OF NEW ROSES.

BY

COURTNEY PAGE, Esq.,

Hony. Secretary, National Rose Society.

(As published in the "Rose Annual".)

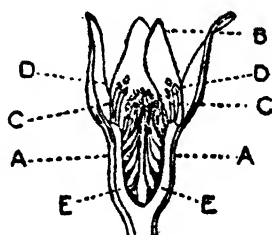
"By hybridization is understood the bringing together of the different species, by crossbreeding individuals of the same species with a view of raising up new beings, differing from and superior to those already existing. But as both processes have naturally been used in bringing the rose to its present state of refinement, hybridizing is the word now generally used when crossbreeding for new varieties of roses. Probably the most interesting part of rose growing is the raising of new varieties, and the amateur who takes up this branch of rose growing must be prepared for disappointment, for it is not at all an uncommon thing for the professional hybridist to make 100 various crosses and then not get a variety that is any advance on those already in commerce. In 1914 I made 142 separate crossings, and as a result saved something like 1,000 seeds. The war came along and the seedlings did not get proper attention, but out of the 230 that grew there was not one that showed any promise, and none were propagated. Then, too, the majority of rose seeds produce plants with single blooms and die immediately afterwards. But there is always the joy of expectation; the watching of the tiny seedling as it develops into the plant. Is it going to be a Gold Medal winner? Well, perhaps Yes. It is all a game of chance; but even if one is able to produce a single improvement on any existing variety, he will have done something towards the advancement of the rose. The results that have recently been obtained by an amateur are most encouraging, and I am quite sure Mr. Archer when he took up the cult little expected to achieve, from such small surroundings as exist at Sellinge, the winning of two Gold Medals as well as a 250 Guinea Cup for the best

new scented rose of the year. With him it was purely chance, and what he has done other amateurs can, at least, try to equal, and even hope to improve. The first thing in connection with hybridizing is the necessary plants. These must be in pots, as rose hybridizing is best done under glass, and then only under special conditions, and the essential is sunlight and heat. Without sunlight—the brighter the better—it is useless to try and hybridize roses, and I do not know for certain, but I believe it is necessary to secure the fertilization of all other flowers and fruits, with the exception of orchids. You have only to notice that fact with the plum and hawthorn. If the weather is dull and wet at the time of bloom there are no plums or hips; but given warm, sunny weather we have good crops of both. Plants may be purchased already established in pots, or they may be potted up in the autumn in readiness for the following year. It is best to start with not too vigorous plants, and therefore we should choose for our purpose what are called second-sized plants. These will quite easily go into 6-inch pots, which will be found a very convenient size. When potting do not use a rich soil, rather incline to a poor one. If a rich potting soil is used the plants will make too vigorous growth, and that is not what we require. A moderate growth is the best. When the plants are potted, plunge them in ashes outside until the following autumn, and about the beginning of December remove them into a cold house. Let them remain until the soil gets quite dry, when they may be turned out—be careful not to break the ball of earth—and the drainage attended to, afterwards replacing the plant in the pot. They can then be given water. Prune about the middle of January, and do not start giving heat before the end of the month. They can then be grown on in the ordinary way until they commence to bloom about the end of April. No manure in any form should be given them—our principal object is to keep the plants on the poor side. We have now arrived at the critical time, and before going further it would be as well if we first studied the reproductive organ of the rose.

The calyx* of a rose may be either round or urn-shaped, and eventually becomes the hip. This and the petals form the natural protection to the stamens and pistils of the rose.

* Commonly called the seed pod.

The stamens are those little tender stems that spring up inside the calyx with usually a golden head, called the anther, which, in its turn, contains the pollen. It is from these little heads that turn inwards so as to cover the pistils, that the rose in the natural way becomes fertilized. As the heat expands the bloom so the



SECTION OF A ROSE BUD.
(A) Calyx. (B) Petals. (C) Pistils.
(D) Stamens and Anthers. (E) Seed Cases.

anthers open out. The pistils generate a glaucous matter, so that when the pollen drops it adheres and the fertilization process is complete. The process of artificial fertilization is to apply the pollen of any one particular rose to the pistils of another variety, and the terms generally used are pollen parent and seed parent.

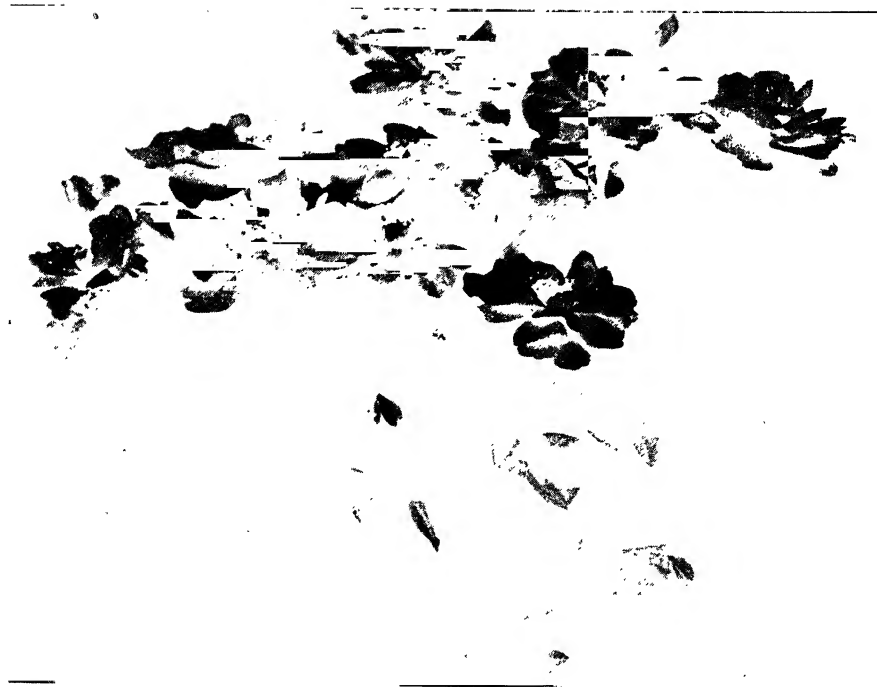
With hybridization it is essential that all the stamens of the seed parent be removed before they have had time to ripen. We therefore choose a flower that is in the bud stage for our seed parent. The stamens will be tightly enclosed by the petals, and it is necessary, therefore, to cut into the petals in order to be able to get at them. The bud is carefully cut around and the petals removed, great care being taken not to damage the stamens or pistils in the operation. By the same method the stamens are removed, care being taken to see that every one is removed, or failure is certain. After the stamens are removed it is as well to put a grease paper cap over the calyx and pistils so as to guard against wet. If the pistils should, by any chance, become affected with moisture, do not waste any time but try another bud, as the damage is irreparable. In two days' time remove the paper cap and it will be noticed—provided it is a hot day—that the pistils are exuding a glaucous fluid. They are now ready for pollenating, and on going to the pollen parent, which should be a fully expanded bloom, we shall find a yellow dust—

pollen—falling from the anthers. With the dry tip of the index finger gently place it on the anthers, when the pollen will adhere like yellow flour. Now go to the seed parent and very gently rub the pollen on the pistils, taking care that as many as possible are well covered with pollen. Put the paper cap on again and wait until the afternoon; then remove the cap take the pollen parent and dust it over the pistils, when the operation is complete. Replace the paper cap and allow it to remain for about three days, when all danger from wet will have passed. When pollenating be careful not to mix the pollen of two or more roses—if that is done it sterilizes it. Matters are now left for a period, but in the meantime the plants still remain under glass, and are allowed to grow on naturally. Any side shoots that start out must be pinched back, and only the stem that carries the seed pod allowed. Within a month the amateur will be able to see if his efforts have been successful. The calyx (seed pod) will begin to assume a more rounded shape, and is usually a dark green-colour. If, however, it turns black or the stem shows any sign of discoloration, then we must try our hand again another day. Sometimes, when all appears to go well for some long time the stem suddenly dies and the seed pod drops off; that is usually caused by too much water being given to the plant. The plants are now left for the seed pod to ripen, which is usually from November onwards. During that period the plants should still be kept on the poor side, and they will probably be attacked by spider. Do not be alarmed—some raisers like to encourage this pest; and I remember when looking at some of the late Rev. Pemberton's seed pods I drew attention to spider. "Yes", he said, "I like to see them". My own experience, however, is that you are better—if possible—without them. When the seed pods are ripe—that may be determined when the stem starts to shrivel or change to a black colour—the pod should be picked and placed in a pot containing damp silver sand for a few days. It will then become quite soft and is easily cut open. The seeds are then removed and it will be noticed that, owing to their being packed so tightly in the seed pod, they assume all manner of shapes and are very hard. There is no rule as to the number of seeds in each pod—Caroline Testout and Pharisaer will have 30 or 40, while other varieties will only

have one or two. It all depends on the care taken when pollenating.

It will be seen that the seeds vary in size as well as shape and, therefore, when sowing, we select the largest. I know there is a certain risk in discarding and when one has plenty of space to spare then sow every seed, but I have noticed that the smaller the seed the weaker the seedling, and one can rarely do anything with it, even if it does bloom. The end of November is the best time to sow the seeds. They should be sown in small pots in a compound of loam, leaf mould and coarse silver sand that has been prepared some time beforehand—I usually put the soil in an old tin and place it on the kitchen hob for a couple of days or more. The heat will kill all seed weeds and any insects, but it is not used until a month or so afterwards.

The pots, large 60's, must be well drained and filled with the prepared soil to within $\frac{3}{4}$ inch of the rim and gently pressed down. The seeds are sown singly, being placed on the surface of the soil and just pressed in with the end of a pencil. They are then covered with about $\frac{1}{4}$ inch of soil, which is made up of one part of loam and two parts coarse silver sand. It is most important after the seed is sown that the pots are not allowed to get too dry, and to prevent that a larger pot is taken and that containing the seed is put inside and the vacant space filled with soil. The pots are then watered, and if possible put in a position where they can get a little bottom heat. This is not essential, but it does help to hurry matters a little. Care must be taken not to over water. Do not use rainwater, but water that has been boiled and allowed to cool. Rainwater encourages moss to grow on the top of the pots, which is very harmful. The first sign of life may be expected in the following January, and the breaking through of the seedling is very interesting. You will probably have looked at your pots overnight and seen no signs of any movement, while the next morning you may find that during the night five or six seedlings have started on their way. They will grow very rapidly at first and with ordinary luck will bloom about April, but some seeds will remain dormant much longer, and on one occasion I remember the seedlings coming up two years after sowing. I said ordinary luck because the most difficult part in connection with hybridization is the raising



CHAMPA



ORANGE TRIUMPH



SHOBHA (One stem)



PUJARINI

of the seedlings. They are very subject to mildew, and no matter whether the seedling in after life—if good enough—is free of this disease, as a seedling it will have it, and I have known as many as 75 per cent. of the seedlings raised in one year to die from it. The late Mr. McGredy told me at one time he used to lose 70 per cent. of his seedlings from mildew alone, but he himself had found a cure which he always used,* and had since but few failures. Greenfly must be watched for, and should the seedlings be attacked by that pest they must be fumigated. On no account use any spraying mixture. Care must be taken to see that rats, mice and sowbugs are kept away from the seeds and seedlings, or they will destroy them. The watch for the first bloom is full of anticipation—What is it going to be? Sometimes the bud is so hard that it will not open. That seedling will be useless. Many of the blooms will be single—we can propagate any one of our fancy—others will be semi-double. If they are a good colour or scented, propagate them, as it is impossible to tell the value of a rose when first seen as a seedling bloom; it is only after it has grown out of doors that one can judge its worth. Seedling roses will often die after blooming, so we must be prepared for emergencies by having some seedling briars ready in pots. These should have been potted up in large 60 pots the previous spring and brought into the greenhouse in February. By April the sap will be running sufficiently to bud, and the earliest opportunity should be taken to bud the seedlings. The buds are so very tiny that it is often necessary to use a magnifying glass. Provided the sap in the stocks is running well you need not trouble to take the wood out from the bud, but put it in just as it is cut from the seedling. A very good plan is to plant up some small seedling briars in a warm border during March of the previous year. If these are left they will break into growth quite early in the year, and will be ready for budding at the end of April or beginning of May.

The young plants may also be grafted, but as that requires a special house and expert experience it is a process amateurs, unless they have the facilities and requisite expert knowledge, had best leave alone. Hybridizing can also be done out of doors

* Kuremil.

in the early summer—the method of procedure is precisely the same as that under glass, but the chances of success are small. The grease paper cones then had better be tied top and bottom, and the shoot bearing the seed pod fastened to a shoot cane. The hips take longer to ripen, and if that process is not completed by October then cut the shoot that carries the seed pod, put in water and take it into a warm greenhouse, or the seed pod may be put in damp sand and kept in a warm place. In the old days the seed used to be chance collected and sown out of doors. The late Mr. Wm. Paul once told me he collected and sowed in one year a bushel of seed, but the results were never satisfactory—very few of the seeds germinating. It is essential, therefore, that the seed be sown and the seedlings raised under glass.”—

COURTNEY PAGE.

The above article teaches us everything about the raising of new roses. If anybody be thinking that the process is difficult I may tell him that it is easier in our climate. Here we have plenty of sunlight which will considerably help the fertilization as well as ripening of the seed. During late autumn and winter we have enough of bright sunny days without any moisture. In the morning when the sun is up and the dew dried up, almost every day in such seasons is a suitable day for us. Seed pods will ripen here within about six months.

Many amateurs will find seed pods in their own roses and when they are ripe some may be tried for the sake of mere experiment. When flowers are dried up it is necessary to cut them out for the future growth and flower, but it often happens that some neglected flowers have formed seed pods. You can start with these when they are ripe. Although you have little chance of producing really good varieties you have the advantage of learning something about the procedure. Most of the early hybrids in France were from chance seedlings out of pods naturally fertilized by wind or insects. So many varieties came out of such random efforts. But they have all been ousted by raisings from methodical and scientific researches of the present times.

The great menace of mildew is not of much anxiety here as in cold countries. A slight dusting of very finely powdered sul-

phur will prevent the trouble if there be any. We are not required here to either sow or raise the seed under glass.

Technically every rose germinated from a seed is a new rose because a seedling is never the same as any of its parents. It gives you no credit unless it is an improvement on varieties already existing in commerce. The pride of raising a new rose is not just managing to germinate a few seeds which have been collected at random or hybridized haphazardly without trying to find out the dominant and recessive characters of the parents. There is no rose without at least a little beauty. However much that little beauty may charm you, as its fond producer, other fanciers may not be enamoured with it. Unless you can mercilessly uproot very large numbers of seedlings, raised out of real research, in order to comb out real acquisitions to suit particular requirements and particular situations it will be sheer waste of energy to take up methodical and scientific hybridizing. Every fecundation may not produce a seed pod, large numbers of seeds refuse to germinate, some of the seedlings perish after germination so you will have an idea about the volume of work if you consider the facts behind the raising of the famous rose PEACE. The raiser of Peace said that he wanted to raise a rose suited to very cold zones and having good colour and a foliage that will be resistant to fungus disease in that climate. With all the calculations he made about parentage and strain he raised 800 seedlings from that parentage and only one out of the 800 was the rose PEACE. You may, of course, speculate on an accidental favour from Dame Luck.

The whole credit of improving and obtaining Tea, Chinese and their Hybrids, from original varieties, which India can claim her own, lies with the English and Continental growers. It is never too late to mend and we should not neglect this line when we have so many advantages over the cold climate.

CHAPTER VII.

SOME SPECIAL HINTS FOR THE HIGH HILLS.

ALTHOUGH roses in the plains of the tropics excel for sheer display, they are also surprisingly perfect in the hills. The Himalayan range is actually the home of roses. In the Garo and other hills wild roses are found growing in bushes of such dimensions that hunters beat them in search of tigers.

As rainfall is heavy in the hills, roses should be planted after the rains. Elevations so much vary that one general rule should not be followed. Where the winter is not hard roses can be planted even at that time. Better results are expected by planting after the rains, that is during October and November. The next best time is from the end of January to the end of March in all the Himalayan hills within the monsoon area.

In places with hard winters, as for example Kashmir, early autumn and spring planting are the best. It is better to plant when there is no risk of sharp frost.

The preparations of beds and manures, etc., are all the same as in the plains. Roses grow most successfully in pots in the hills.

Latter part of March is the best time for pruning roses in the hills but where the winter is not very hard earlier pruning will also suit. Pruning should be a little harder than that for the plains because vegetative growth will be less vigorous without tropical heat. With the exception of light pruning the instructions as laid down in the chapter for pruning should be followed. If roses are wanted to be grown in shrub form the "thinning-out" process can be applied with very good results.

I have stated that climbers should never be pruned. There are some varieties of climbers which are unsuccessful in the plains, for example the *Wichuraianas*, *Climbing Polyanthas*, *Multiflora Ramblers*, etc. These are trained as pillars, wall climbers, or pergola climbers. They are very hardy climbers with small flowers in clusters produced for a short period either during spring



RAJA RAM MOHAN ROY



DENABANDHU REV. C. F. ANDREWS

or summer. These plants need some pruning which is quite unlike the other roses mentioned above. They bloom on shoots which grow during spring from wood which grew the summer before. Except for removing dead wood and stopping any undesirable growth, they should be left unpruned in the spring when all other roses are pruned (I mean in the hills). The proper time to prune them is in summer, immediately after they have finished blooming. All the shoots that have borne flowers should be cut back either to the base from which they sprang or to the point where a strong new shoot arises out of the old one that is being pruned. When this pruning is finished the plant consists of new growths only which are then to be trained as desired. Sometimes an essential shoot that has flowered may be retained only for the form of the plant.

My readers in the plains with lower altitudes have nothing to worry about these as they will produce only vegetative growth but no flowers. They are neither to repent for the climatic drawback as the ever-blooming climbers if not better are at least not inferior to them in any respect other than a great burst of bloom for a short period. In lower altitudes where light frost is to be had every winter those climbers flower with partial freedom.

The roses may, with advantage, be fed with liquid manure when they have formed buds after pruning. Over-watering is bad for roses in the hills. They should have sufficient water when the soil is dry but watering on wet soil is bad, and it is bad everywhere.

Both during the rains and frosty winters care should be taken about free drainage. In places with severe and hard winters some sort of protection must be given to the trees. In some places the snow forms a hard crust for a long time during winter. Where it so happens precaution must be taken beforehand. In such severe climate roses will drop their leaves and they will be forced to rest. The beds should then be covered with a layer of two or three inches of farmyard manure under ordinary garden soil heaped round the trees to cover a portion of the stems. A further protection of leaves all over the beds will considerably help. The leaves should have a weight of branches or twigs from some trees so that they may not move about. With spring the heaps of garden soil are to be removed, and the manure hoed in with

such leaves as may have decayed. The mulching thus hoed in will considerably improve the roses which are then to be pruned. There are some high hills with extremely dry winter. In such places it is better to drench the beds thoroughly before the snow sets in. That drenching will keep the roots moist during the severe climate. If the winter be not hard enough to make the plant quite inactive, the heaping of soil should not be high. Even slightly active plants may throw out roots in the heap of soil round it. This will be injurious as the roots will die when the heap is to be removed. When roses are quite inactive under hard winter they are bare of leaves.

Hybrid Perpetual roses are very hardy and are known to stand hard winter with perfect safety. It is good to give them some protection with a small heap of soil so that the trees may not loosen the roots by movements of the heavy tops. Shorten any shoots too long to move about and to bruise other stems. Teas and Pernetianas will be most delicate and must be guarded against severe weather. Hybrid Teas, Bengal or China roses are delicate but not so much. The Japanese Rugosa and the Wichuraianas are hardy. Ramblers and Wichuraianas are very successful in the hills both in growth and flowering although they never flower in the plains, excepting "Crimson Rambler" which is of Multiflora type.

Even during hard winter roses will grow to great perfection if they are grown in a heated glass house.

It is better to select moderately full varieties and studiously avoid very full flowers which do not open easily. It is also necessary to avoid such varieties whose petals get balled, that is glued together in wet weather.

Roses grow quite successfully from cuttings in the hills and can be inserted during the growing season, spring being the best.

The cuttings should be inserted in pure sand or as sandy a soil as possible. The best time for layering will be June-July, and June-July being the best for budding or grafting. Insect pests and diseases should be guarded against. Mildew will be more common than in the plains.

CHAPTER VIII.

GROWING ROSES IN POTS.

Roses are such a popular and worth while subject that everybody wants to grow them even when they have no suitable plot of land. Growing in pots is a necessity for such people as also for those who in spite of having them in the ground want to have them for house decoration.

Many people doubt whether these vigorous plants can be successfully grown in pots. The doubts are entirely groundless because in Europe and America thousands, or I may say millions, are commercially grown in pots under glass for the supply of cut flowers, as also to meet the demand of flowering pot plants. It is literally an industry there.

By having roses in pots you can have for house decoration such plants as will bloom during most parts of the year which is not the case with any annual or most other perennial plants. There is no flower to excel the rose in beauty, sweetness and variety as also in the length of blooming period. Therefore the greatest advantage can be gained by growing some in pots and removing them to any desired place when crowned with flowers.

In big towns there is a great dearth of open land, specially of sunny plots, for rose growing. That handicap against rose growing can be easily overcome by growing them in pots on the roof of the house.

The pots should not be small. At least 10" pots are suitable and remove your plants to larger pots if required. While re-potting you should plunge your vigorous plants into larger pots. Care must be taken so that the plants do not get pot-bound, therefore the larger the pot the better the growth. Twelve-inch pots are not too big for the plants but they may be too big to handle. With big pots annual re-potting may not be required and a top dressing with fresh compost before pruning time will help them.

Shifting to larger pots may be avoided by timely re-potting with replacement of a good deal of old soil by a compost of fresh soil and one year old cow-dung manure. The compost should

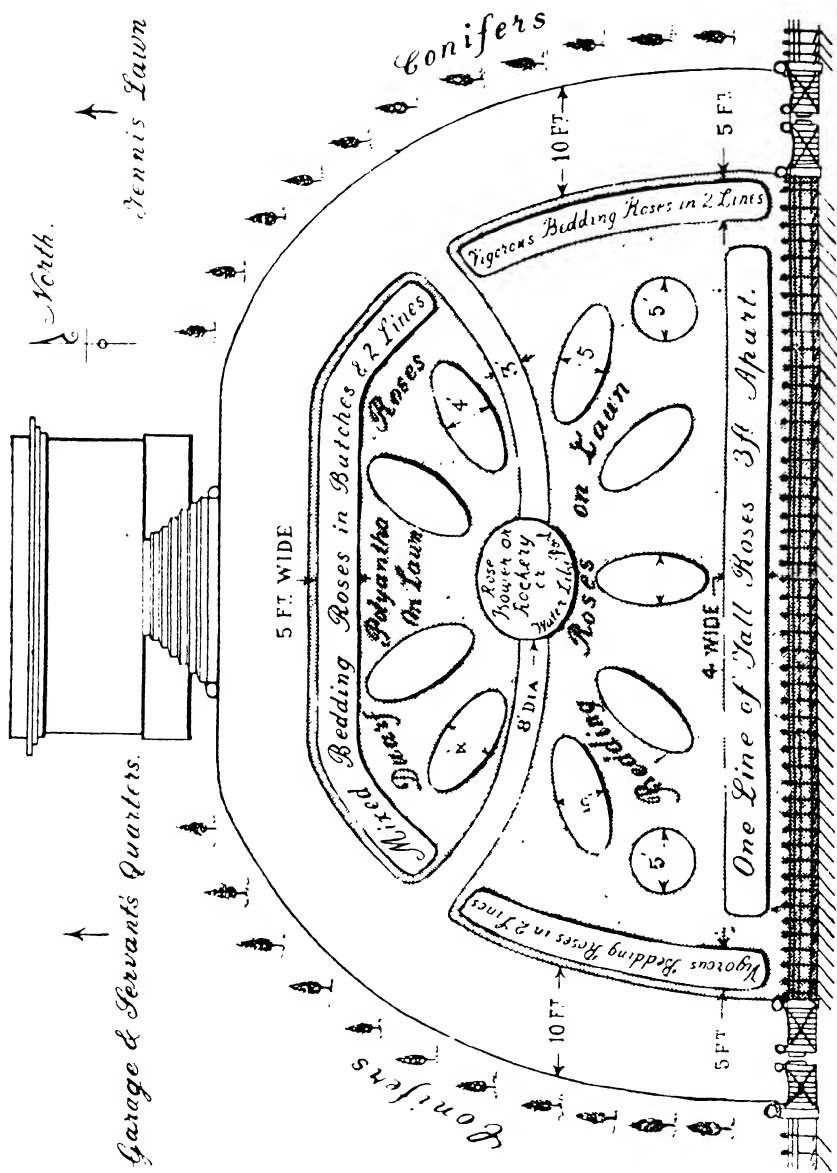
be of one part loamy vergin soil, one part burnt earth as described below and one part cow-dung manure with some addition of leaf mould. Old plants in ten-inch pots should be re-potted every year after the rains and fresh soil added. This is for the plains, but in the high hills re-potting is best done as soon as the winter is on the wane. Autumn re-potting can done in such hills as have no hard winter or where you can give a protection of glass during severe weather. After re-potting and adding mannured soil the plants should be pruned or thinned out as may be necessary in particular cases.

The soil necessary for potting roses should be three parts of greasy loam, one part of leaf mould, one part of old cow-dung (about one year old) and one part of half burnt earth. I describe here how the best half burnt earth can be obtained for roses. Your garden often needs weeding. These weeds and other refuses of the garden should be heaped together when dry. With addition of a few pieces of dry wood this heap is to be covered with garden soil and set fire to. After setting fire go on adding earth so that the fire may not run into flames. If properly done the smouldering heap will burn nicely like a brick kiln. When extinguished have all the ashes and charred earth mixed and broken up for use. (This is most helping to roses whether in pots or in the ground.

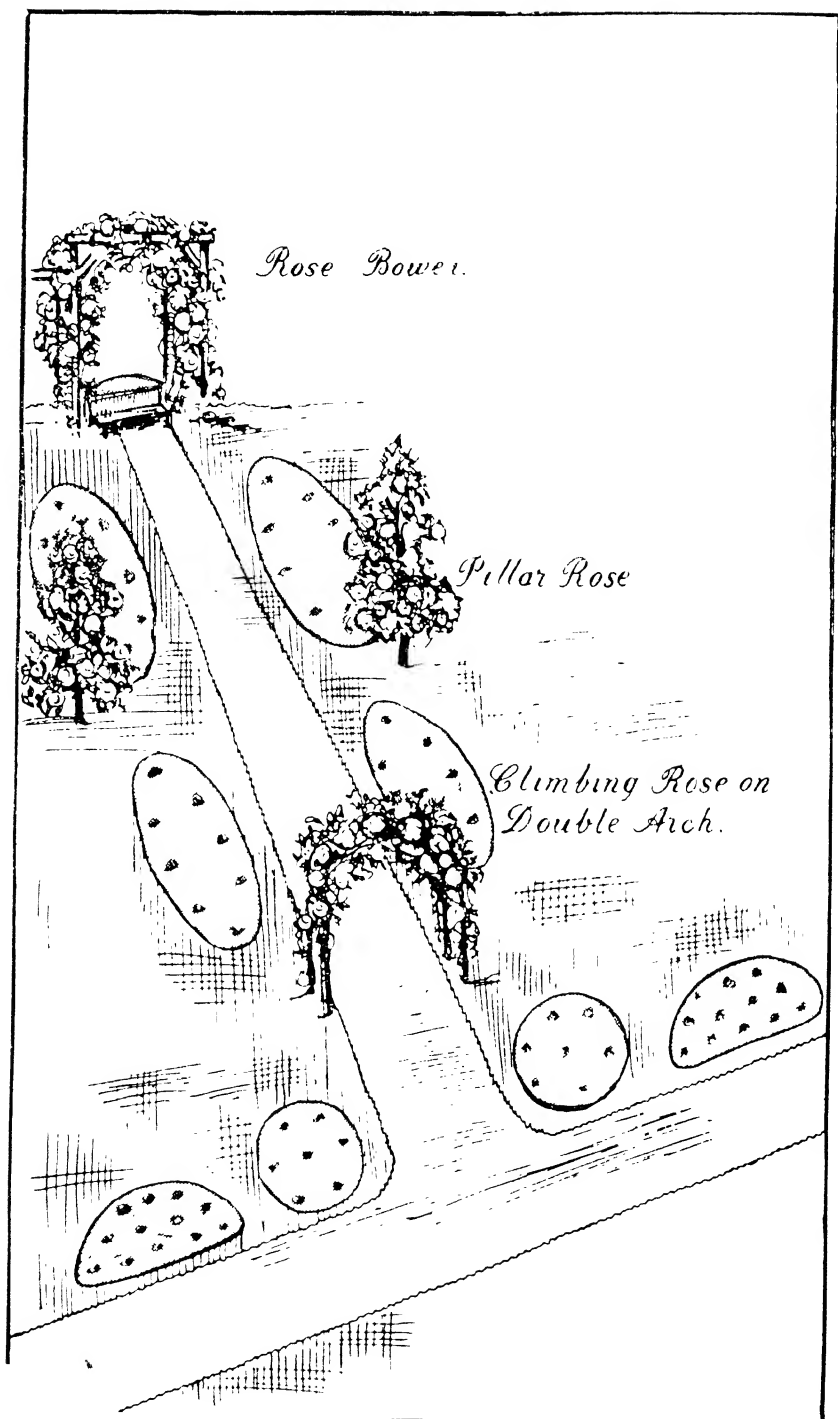
It is better to have your potting compost ready some time before you plant. They should be turned up and mixed together several times. A light sprinkling of lime is necessary. The lime, helping to kill any pests, will sweeten the compost. While potting with this compost add half a handful of bone meal to each pot. The bone meal should not be on the surface of the pots and may be mixed up with the compost.

I prefer pots with three or four side holes instead of only one central hole at the bottom. The side holes will not only help better drainage but when the plant is getting pot-bound rootlets will peep out of them to tell you that re-potting may be done.

Before putting the compost in the pot carefully close the drainage holes with parts of broken pots so that only the superfluous water leaks out. Break useless pots or bricks to the size of large gravels and place them at the bottom of the whole



Garden Design No. 1.



Garden Design No. 2.

pot about two inches deep. You know, this is a necessity for proper drainage.

While getting young plants for growing in pots select strong bushy ones, even if they cost a little more. It is not worth while starting with weak plants, as they take a longer time to grow in pots. Always try to induce your plant to throw out basal shoots and get bushy. Discard plants worked (i.e., budded or grafted) high as they will scarcely turn out to be a glorious plant and will be defective in various ways. Do not plant too deep. The budded or grafted portion is to be just half inch below the surface. Many varieties with their own roots (from cuttings or layerings) grow very nicely in pots, and have no risk of getting damaged by overgrowing suckers of the wild rose often neglected and unnoticed by the beginner.

While planting press down the compost as hard as you can. Do not fill the compost quite up to the rim but leave a little space for watering. In big towns different sorts of water is available. Tubewell water is often very hard. Unfiltered river water as available in Calcutta or other places near the sea gets salty at times and then damages plants. Filtered tap water or water from a tank or well is the best.

Do not apply any liquid manure to the roses until they are established in the pots. When established you may begin with a very weak solution of cow-dung once a fortnight. A tablespoonful of castor oil cake powder, along the rim of the pot once or at the most twice a year according to the health of the plant will be very helpful during the cooler months in the plains and spring in the hills. It is not to be applied to weak plants. Plants about one year old will be fit to have forcing with manures. Such plants may with considerable advantage be fed with liquids of cow-dung, fish meal, and guano, fowl or pigeon manure each month or every two months according to the necessity of the plant. Do not make an over-dose. Instructions for the correct strength of liquid manures have been written previously in the "Feeding and Manuring" chapter. An occasional feeding with a small quantity of sulphate of iron in solution will add to the colour of the flower. An occasional application of soot will be very helpful. Never manure pot roses in any

way during the hot season and when the growing season is over.

The first thing necessary to bring a pot rose to perfection is to induce it to grow into a shapely strong plant. It is necessary therefore to induce all the energy towards growth without allowing it to flower during the first few months. For several months or up to one year rub off any flower bud that may appear. Try to have bushy growth. At times it happens that one shoot grows too long, and takes away all the sap preventing any other shoot to grow. In that case pinch it or cut it back to a reasonable length. In case of very vigorous or tall growing varieties it is necessary to lightly prune your young plants as soon as they are established. If the plant does not begin to throw out new vigorous shoots from below, pruning will induce it to do so. It often happens that a number of shoots begin to grow and get too much crowded. Train such shoots to form a shapely plant. It is better to have perforations along the rim of the pot. Such perforations will allow you to bind the stems by passing thin ropes through them and properly train the plant to form a larger bush than it will do naturally. While training the shoots you will yourself feel which stems are superfluous and should be thinned out. By drawing lower or basal shoots towards the rim of the pot whence they will go up, and by staking central ones, if so necessary, you will get a nice pyramidal shape. As soon as your plants have finished producing a crop of bloom apply your secateur to them, cutting off decaying flowers with reasonable stems and thinning out all crowded shoots. This is not actual pruning but thinning out. For pruning follow the usual methods as previously stated but make it a little harder in pot roses. Here I may again say that ever-blooming roses may not be formally pruned but thinned out at intervals.

Care must be taken in watering pot roses. Commercial growers or growers abroad do not leave the sides of the pots exposed to air and they are often plunged in the ground. As that is not always possible for amateurs, watering must be sufficient in the tropical plains and just sufficient in the hills. Watering in the afternoon is the best. During the growing and blooming season there should be no dearth of water. Liquid

manure should be applied from the time the flower buds are perceptible.

Disbudding can be done when flower buds have formed but personally speaking I do not like pot roses to be disbudded unless some bud is malformed. The size of the central flower is increased by rubbing off the small buds surrounding it, but a number of flowers is preferred to one large flower in a pot rose for giving greater decorative effect. Some shoots may run to leaf and take away more of the sap without producing flowers. These should be stopped, or cut them out if the plant has enough of stems and has already formed a neat shape.

Some roses of vigorous growth of Hybrid Perpetual type are often inclined to produce ranky growth if not rightly pruned in the right season. If unripe shoots of H. P. varieties are retained in the expectation of flower, they should be drawn horizontally, as much as possible without injuring them. This will produce an effect similar to the practice of "pegging down", as previously described in the chapter for pruning.

Free blooming varieties of vigorous free branching growth are the best for pots. The Hybrid Bengal roses, for example Madame Eugene Resal, Gruss an Teplitz, Comtesse du Cayla, etc., although producing no perfect shape are highly decorative with their mass of blooms in pots. Many Tea roses and free blooming Hybrid Teas in particular are most suitable.

Some people think that very vigorous roses cannot be grown in pots. But it is a fact that even such fast climbers as Marechal Neil, La Marque and the summer blooming Ramblers and Wichuraianas will grow and flower most satisfactorily if they are properly trained and supported.

Dwarf Polyantha and Hybrid Polyantha (Floribunda) roses are most decorative as pot plants. They are so free blooming and can be well utilized in pots.

It is curiously decorative to have pot roses producing flowers of two colours from one pot. This can easily be done by first growing a wild rose stock and then inserting buds of two separate roses on the same. In doing so care should be taken to bud varieties with similar habit of growth. The buds should be inserted on both sides of the stock and one should not be much above the other so that both may utilize the nourishment equally.

If they are far from each other the upper one will be impoverished. If the plants are not of uniform habit they will never combine nicely. The plants will grow better and will be easier to bud if such a stock be selected as has two strong laterals rising from as low a position as possible. The buds will be better nourished if each be inserted on a lateral.

CHAPTER IX.

ROSE CULTURE IN LOWER BENGAL.

BY

RAI SAHIB A. C. PAL, F.R.H.S.

Soil.—The most important point in the cultivation of roses is the selection of the ground where the rose is to be grown. A well-drained piece of loamy land slightly raised, if possible, above its environments is a desideratum ; but where it is not available, it must be artificially made. There are various kinds of loam but the most preferable is sandy loam in our country where the climatic condition helps to keep the ground moist during a considerable portion of the year. Heavy or strong loam is however not bad but it must be improved by an admixture of a suitable quantity of building rubbish, wood ashes or a little sand or cinders. Burnt clay and sprinkling of lime improve the texture of retentive soils. But sandy soil as is often found in alluvial tracts of a riverine district will require a little effort to convert it into a rose soil. The whole of the top stratum to the depth of about two feet should be removed and clay imported from the nearest available place and thoroughly mixed up with the sand in the sub-stratum to transform the whole into a soil of gritty clay. The ideal rose soil in Bengal is *rich loam*. I found it in a tank overhung with branches of trees and fed by washings from the surrounding pasturage in the rains. I used this silt to raise a large number of low rose beds in Barrackpore Park in 1909 when the question of the improvement of roses came to the forefront in consequence of the increasing demand for cut flowers in Government House, and the effect was magical. The rose garden was a sight to see, the supply was so copious and the quality of blooms so greatly improved that the Viceroy (The Earl of Minto) inquired if we had made a new rose garden. It was indeed a renovation of the Viceregal Rosarium which was brought about by the use of this silt which is nothing else than rich loam I have just mentioned.

Site.—Selection of site for a rose garden is another important matter to which the would-be rose grower should give due attention. The ground on which one wants to grow roses should not be shaded by large trees or too open or wind-swept. But it must have enough sun and air and, if possible, protected from the scorching western sun in the summer. So if you have a fairly high building on the north or west side of your rose garden land a few tall trees on the south and west sides at a suitable distance from the actual beds, the object is achieved. The idea is that the rose garden should not be much exposed to strong wind and hot sun.

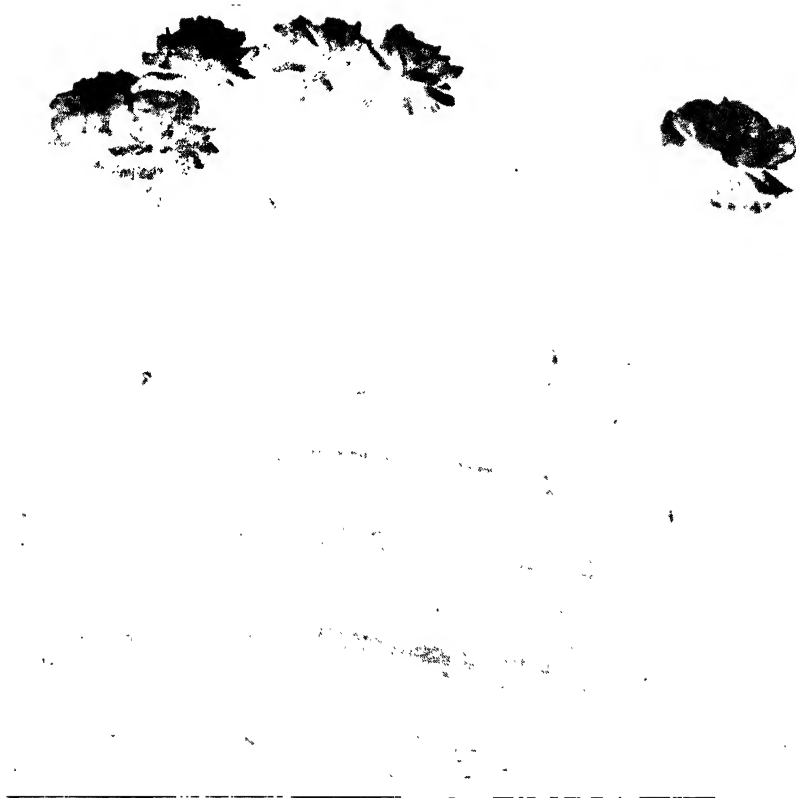
Then comes the preparation of ground which is none the less important. The whole of the ground enclosed or marked out for a rose garden must be freed from all sorts of jungles; and dug over or ploughed sufficiently deep to eradicate weeds and other noxious jungles which are so rampant in the rains in Bengal. The rose beds are then to be marked out, and places trenched three feet deep or more if one can afford. The whole of the earth taken out of the trenches should be laid in loose heaps exposed to sun and air for about six weeks or until it is quite friable. Then pick-up the bottom of the trench with a pickaxe, hoe or anything you find handy, and mix in old building rubbish or broken bricks or even gravel about four inches thick. Now throw in half of the soil taken out after adding a little lime and stirring it several times to make it quite friable; and when the time for planting comes mix cattle yard manure one to eight of earth with a little burnt clay or wood ashes thoroughly with the remaining half of the soil and put into the trench. Top-spit, i.e., earth about six inches below the turf of an old pasture land serves as an excellent manure, if available, can be used as top-layer of the rose beds. It is also good to sprinkle some sand on the surface of the beds. It promotes root growth of the newly-planted roses and helps the drainage in wet weather. After the individual beds have been treated in this way, it is advisable to turn your attention to the whole garden, which should be levelled in such a manner that there may not be least stagnation of water in the worst part of the rains. The slope, if possible, should be on all sides, but if that is not possible it should be on more than one side, so that when during the

continuous wet weather, as is often the case, a certain water passage is clogged, not through the fault of your own drainage but by extraneous causes resting with neighbouring properties, your water may pass out through the other passage.

Planting.—When the whole garden is thus ready, planting may be started in a dry mild climate. Planting may be done almost throughout the year excepting the continuous monsoony weather. It is, however, best done after the thorough cessation of rains till the end of spring in Bengal. Choose a dry temperate afternoon and begin to plant your roses ; if you have to get through a larger number, go on planting every afternoon till the weather is adverse. If possible choose a single variety or varieties with similar growths and habits for each bed, mark out the lines and intervals between the plants on your bed before planting is started. The space between the lines and plants should be according to the growths of the plants. They will depend more on the knowledge of the habit of the plants than on anything else. For an amateur it is always good to have an expert to help him in this and other matters regarding rose culture which are only learnt by practical experience. Description of plants given in trade catalogues is not of much help, as climatic conditions, soils and various other causes combine to work astounding changes in the constitution of plants. I have often heard it said that Hybrid Perpetual roses should be planted three feet apart, Hybrid Teas two and a half feet, Teas two feet, and China and Dwarf roses one and a half feet only. It is however not bad to have a general idea ; and experience will gradually teach you when and where the rule is to be relaxed. There is much in the relation between the climate and soil, and you will soon discover the combined effect of your particular soil and climate on your plants and then the whole thing will appear easy to to you.

Now about the depth at which roses should be planted. I have read and heard of various opinions about it ; but all practically agree that roses should not be planted “too” deep. It may be puzzling to an amateur to find out what is “too deep” and what is not. From what I have seen of roses planted at various depths I should consider four inches to be sufficient depth for roses generally, though tall standard roses can be

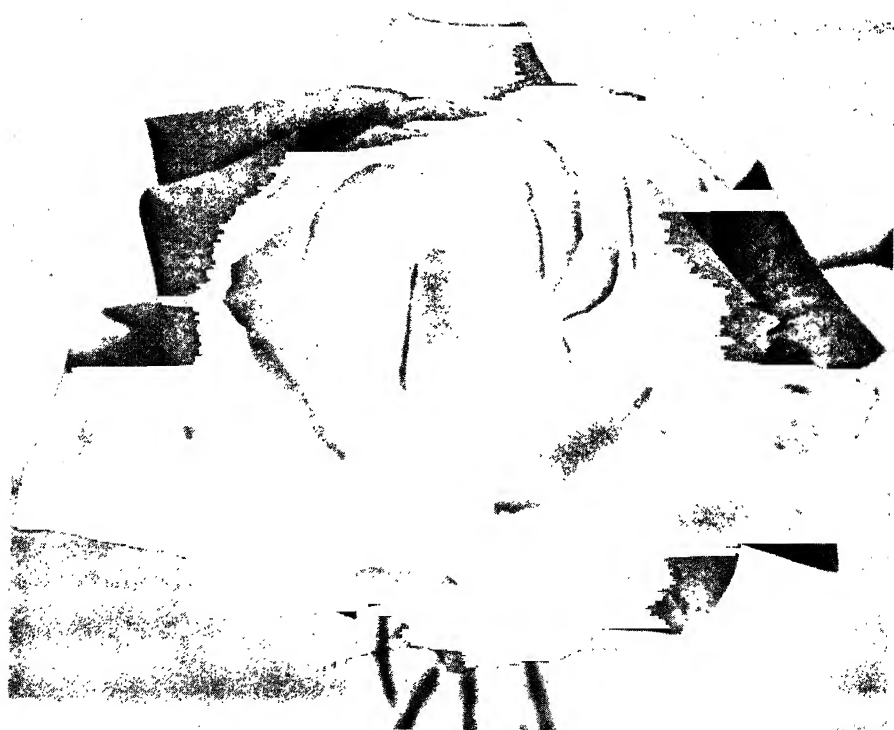
advantageously planted a little deeper. But there is an important point to be remembered in this connection ; and it is the union of the stock with the scion. In planting you should see that the union is slightly below or even flush with the surface of the bed, but various nurserymen bud and graft their roses at such varying heights that the amateur will be at his wits' end to reconcile the position of the unions with the instruction regarding the depth. Should he find an union six inches high he may plant his rose five inches below the ground, leaving the union one inch above the ground for the time being ; this one inch will soon disappear partly by sinking and partly by addition of manured soil to the bed. But when the union is only about one and a half inches or two inches high the rose will have to be planted not more than three inches below surface. One must always use his discretion in matter like this. Our Indian nurserymen usually supply roses with small balls ; these balls, if of sticky clay forming a hard ball, should be split sufficiently for the roots to get out with ease before planting. I do not advise beginners to import roses from abroad ; it is undoubtedly good for them to place their orders with respectable Indian nurserymen who will select and send the right kinds for their gardens, if they mention the nature of soil and climate at the time of giving orders. But if they are at all anxious to import, they must learn how to take care of the imported roses on their arrival and how to plant them. Roses should be ordered from firms of established repute who should be asked to send the plants in November. Beds should of course be kept quite ready to receive them. On arrival the plants should be unpacked with proper care in a cool place and arranged in separate varieties and sprinkled over with sunned water. If any damages be found in the trees or bruises in the roots they may be cured with a little charcoal powder but if there is any breakage in the branches or roots they should be cut clean off. Some of the plants may get dry during the travel, clay bath (i.e., clay in a semi-liquid state) is beneficial for them. It is good to give the plants a little rest after the journey, and often we have to wait till next afternoon for want of time. The plants may be left in the cool place covered over with slightly damp gunny or any soft material. The planting of roses from



ZAKIR HUSAIN (2 years old plant)



RISHI BANKIM



RADHARANI


abroad is slightly different from that of indigenous ones. The holes should be spacious enough for the roots (which are often good many) to be spread at the bottom horizontally without being twisted or crammed together. An assistant may hold the plant upright while the planter goes on spreading the roots and gradually filling in the hole with soil which should be sufficiently pressed down to keep the tree quite erect. After the planting is finished and the soil round each tree is firmed, you should see once more that the level of the garden has not been so disturbed as to prevent free passage of water should there be a heavy shower soon.

Manure.—Success in culture of roses depends much on the right kind of manure. The tradesmen advertise, people talk about, and the novices who profess to know, praise such a large number of manures that one is simply bewildered when he has to choose one for his purpose. There are the animal, the vegetable, the chemical, and a legion of patent manures—all pronounced “the ideal for the rose”; but I have found from my 27 years’ experience in roses that none has yet beat our favourite compost of decomposed cow-dung and mustard oil cake. To prepare this compost, mix one part of decomposed mustard oil cake with eight of decomposed cow-dung thoroughly and expose the compost to sun for a few days, till it is quite dry and can be easily powdered. Pass this powder through a fine sieve, if you want the manure to act quickly on your plants, put a six-inch potful of this manure round the roots of the roses which have been already exposed, in a cordon that does not touch the roots at all. When manuring the plants see that the soil is fairly dry. The manure round the roots may be exposed to the sun and dew for about 48 hours and then covered up and the plants watered properly. This manure is easily available in Bengal and cheap and never injures the plant, even if it is handled by a man without experience. In these days of advance in scientific cultivation, much is claimed for chemical manures, but as I have already said none has yet beat this simple compost. The quantity of this compost manure may be increased or decreased according to the growth and constitution of the plants; but a six-inch potful should suffice for an average rose. Artificial wintering or rest is not necessary for the new plant in the first year of its life, so the

roots should not be dug out or manured ; but an occasional dose of weak liquid manure may be given to encourage it when necessary. Liquid manure is easily prepared from washings of cowshed-floor which contains in it a certain amount of urine, grain dust and other vegetable matters and is an ideal tonic food for plants. Droppings of horse, sheep, pig, fowl, etc., are good in their own way and I could mention here hundreds of other things that might be beneficial for roses, but my object is to help the beginner and not to confuse him. In our country any amount of cow-dung can be had at little or no expense. I would rather advise my culturist friend to have a few cows of his own and he will soon find his herd a veritable gold mine for agricultural, horticultural and floricultural as well as domestic purposes. Manuring can be done at the time or little after pruning is done ; but it must not be done when the ground is wet.

Pruning.—Proper pruning is as much a necessity for the well-being of the roses as is suitable soil ; on it depends the health, shape and efflorescence of the tree. It is an intricate operation which has to be learnt by practice, but unfortunately I have not had enough of it to be able to pose as a master of this art. I shall therefore give here a few hints and shall be glad if they prove to be useful to my amateur friends. The nature of pruning differs with the nature of the plants ; but the general rule is that the more vigorous the tree the lighter should be the pruning, and the more weakly is the tree the closer or harder should be the pruning. The rule is, however, often relaxed for special purposes ; when a few exhibition blooms are required the heads of the plants are cut freely and the lateral shoots closely pruned ; but in case large number of flowers are wanted, lighter pruning may be given. If any early crop of flower is desired, cutting of dead and decaying branches and a very light pruning is advised. In the early years of the twentieth century, we had quite a large number of Elizabeth Vigneron in the Viceregal Park at Barrackpore which used to help us a good deal to meet a very large demand for roses of one colour on big occasions in Government House. I used to prune this floriferous variety in three batches at short intervals, giving the first batch very light, the second medium, and the third a hard pruning ; and our dear Vigneron never failed us.

During the whole of winter we could do large tables (to seat 100 to 116) with Vigneron only. We can thus regulate the pruning operation according to our needs without any harm to the plants. In fact there should not be any hard and fast rule, but discretion should be the best guide in this as well as in a host of other things. To attain this discretion my amateur friend must be constantly in touch with the roses for a considerable time ; but he must begin in a business-like way and I am giving here a few suggestions as to how he should do this. Let him equip himself with a pair of strong leather gloves, a pair of good secateurs and a sharp pruning knife and then begin with a young established plant. He must, of course, acquaint himself with the nature of its growth—strong, moderate or weakly—and if it be a strong grower prune it lightly, i.e., up to six or seven eyes, if moderate to four or five, and if weakly to two or three eyes. If he goes on operating upon easily-manageable plants for some time he will soon acquire the requisite knowledge of pruning the ordinary garden roses and will be in a position to decide for himself what should be done in difficult cases. It is almost useless to expatiate on details, for so numerous and varied are the cases that have to be tackled that one must be his own tutor if he wants to be quite successful. I would however advise my friend generally to adopt a medium course when he has any doubt about the nature of the plant, and then watch the result and thus acquire experience for the future. I have often found it beneficial. It does not pay to be drastic ; but one need not be too shy with his secateurs which must be used at least for cutting away dead wood, weakly shoots, decaying branches, dry flowers, etc. from the plants that require no pruning. The climbing roses generally require no pruning beyond cutting of dead wood, sickly shoot and dry laterals. Sometimes, however, when the main stems race away without sufficient number of buds breaking, and there are no reliable basal shoots, it should be cut down to seven or eight buds to help them to break. Climbing *Devonensis*, *La Marque* and *Solfatere* have been found to do remarkably well under this treatment in Bengal. *Marechal Neil*, *Madam Jules Graverex* and similar others are quite good either for walls or pillars. The pillar roses can be treated like climbers and hardly require any

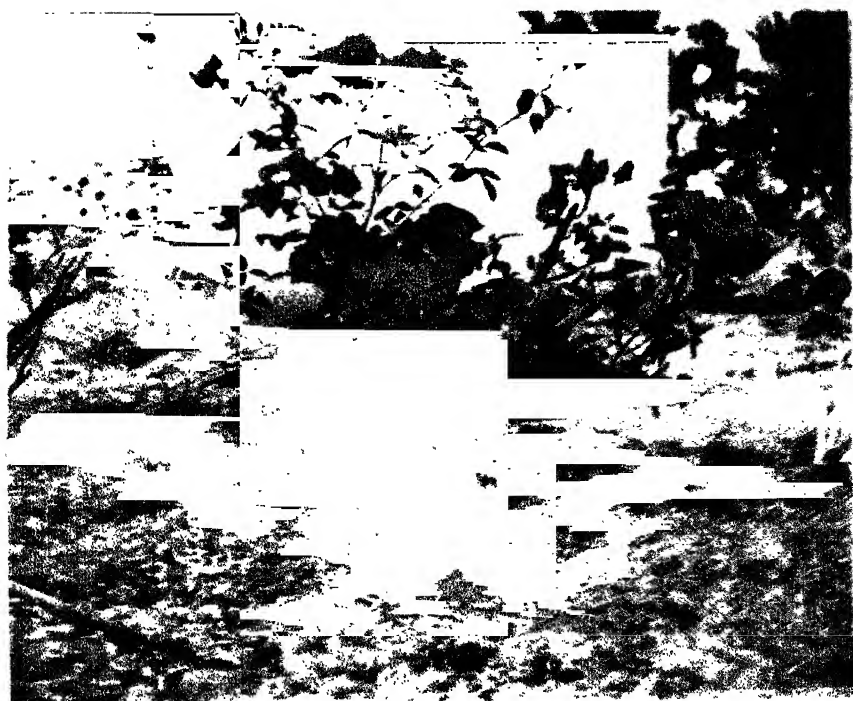
pruning beyond the cutting away of dead wood, weak  shoots, decaying branches, etc., but if you want to have the pillar covered with blooms from top to bottom, and there are not sufficient number of pliable branches to go round the pillar to achieve this object, you must shorten the rod or the stem year after year to promote flowering shoots at intervals.

Roses can be quite successfully grown in coastal regions with retentive soil, as in lower Bengal around Calcutta, if the requirements of the rose are provided for. The retentive soil will be considerably improved by adding equal proportion of half-burnt earth. In the previous chapter, for pot roses, easy method of preparing half-burnt earth has been narrated. It will also do if the outer coating of brick kilns or tile kilns be procured. This will improve even saline soil. It often happens that due to low elevations water does not drain out quickly and renders the surrounding too wet. Under such a situation health of the rose is much affected by hampering root growth. This handicap may be easily got rid of and the rose beds made all the more attractive if the beds are made about $1\frac{1}{2}$ ft. higher than the level of the garden. The sides of the beds are to be protected by chunks of lime-soorki mortar roof tops from broken buildings. These mortar chunks should be placed in gradual slopes. However closely set there will be some crevices between them and low growing Annuals can be planted therein to provide a beautiful edging to the roses. Many residences have Verandahs or Porticos on the fully sunny side. A reservoir like brick structure can be constructed, 3 ft. wide, with enough of water holes for drainage at the bottom. Such reservoirs will grow beautiful roses if they are not less than $2\frac{1}{2}$ feet deep and are filled up with compost as advised for pot roses.

B.S.B.



AGNI VEENA



COCORICO

CHAPTER X.

CLASSIFICATION OF ROSES.

By going through the various classifications of Roses the beginner is often bewildered as to which will be the best for a particular situation. I am not here to write a botany or history of Roses or to devote pages to the many types of Rose Species (Wild Roses) or the immense number of varieties so far introduced. Varieties still not forgotten and necessary or generally known ones as also some famous recent ones have been discussed, in the following chapter, to help selection in tropical humidity and heat.

Species of roses are so widely distributed in the world that probably every zone can claim some of the types to be its native just as in the animal—Bear—there are Polar Bears, Brown Bears, Tibetan Bears, Malayan Bears, Indian Sloth Bears etc., which are natives of different zones of the world. Similarly there were and are native Indian Roses. Dr. Jules Hoffman's authoritative book on Roses was first published in Germany. It is mentioned in its English translation, published in 1905, that "The Queen of flowers is supposed to have been introduced from India and Persia to the gardens of the ancient Greek and Roman Empires, whence it has been distributed over the whole civilized world in the course of centuries". The native roses of the frost bitten zones of the world are of summer blooming habit only while *Rosa Indica Semperflorens* (German author Dr. Hoffman calls it *Rosa Bengalensis* while the English speaking people call it *Rosa Chinesis* or China Rose) and *Rosa Indica Odorata* (Tea rose) are perpetual blooming i.e. blooming throughout the year. Some Englishmen say that the name BENGAL Rose is misleading and they base their assertion on the ground that an English traveller carried the rose from Canton, during 1769, so it is a China Rose. It is also asserted that because some or those roses were brought to England and France in the ships of the East India Company the roses were, by mistake, styled as Bengal roses. A very pertinent question crops up as to where on earth

were the ships of the East India Company when, as Dr. Jules Hoffman says, roses from India and Persia reached the Greek and Roman Empires? It might not serve any practical purpose to contend whether that type of rose is of Chinese or Indian origin but it is a historical fact that there were not only wild but garden varieties of roses in India from centuries ahead of 1769.

Not only in the Bengal side of the Himalayas but also towards other parts of India very old and huge bushes of roses can still be found growing wild in such parts of Himalayan forests which are very far from any habitation and at times tigers live under the bushes to have probably the natural outer protection of thorns. The fact that somebody carried a type of a rose on some date from Canton does not prove, on the face of olden records about it, that Bengal Rose is not Indian but Chinese. Under the natural dispersal of seeds no rose could have naturally reached India by crossing the high barrier of snow clad Himalayas. Be that what it may, it is an indisputable fact that over one and a half century before 1769 Ittar (Essential Oil) of roses was known and used in Delhi. Apart from this fact there is mention of the rose in very old Sankrit literature as "Tarunī Pushpa", "Atimanjula" and "Semantika". Moreover the variety named as "Edward Rose" by the Englishmen is a very sweet scented variety of *Rosa Bengalensis* (vide Bailey's Cyclopaedia of Horticulture 1922 edition page 2988). This rose is either a species or a sub-species as it produces seven leaflets in each leaf like some other wild roses. It flowers during our spring and intermittantly during the rainy season. This rose should not be confused with the variety used as an understock in many parts of India and named with a peculiar spelling 'EDOUARD'. From time immemorial Edward rose has been in extensive cultivation in India for the production of Ittar. This variety crossed with *Rosa Gallica* produced the type known as *BOURBON* rose. Therefore a statement that 'the name *Rosa Bengalensis* is misleading' is not at all convincing.

Varieties like "Perle d'Or", "Cecil Brunner", "Lauret Messemy", "Cramoise Superior", or "Crimson China" are progenies of original Chinese rose but varieties like "Archduke Charles", "Gruss an Teplitz", "Madam Isaac Perier" and "Souv. de La Malmaison" have definitely been created out of *Rosa*

Bengalensis. To say that the name Bengal Rose is misleading is itself misleading. Bengal was the most important Province in India during early British occupation so they styled them as Bengal Roses although they were actually grown, in olden times, in many parts of India.

All the European native roses bloom during summer only and hence they named it "Summer Queen" because the Europeans never had a rose blooming in any other season until they got roses from India and/or China as the case may be.

Thanks to the European researchists who went on developing the Rose by cross-breeding the summer bloomers with *Rosa Indica Semperflorence* and *Rosa Indica Odorata*. The resulting new race evolved by their research bloomed during summer as well as autumn so they classified them as *HYBRID PERPETUALS*. These roses have now mostly gone out of favour in the temperate and cooler temperate zones by later productions which are more perpetual and are more suited to frosty climate. In tropical climate Hybrid Perpetuals are very hardy and easy growing; they produce a great burst of very impressive and some very full flowers in their season.

Crossing and re-crossing between Hybrid Perpetuals and varieties of *Rosa Indica Odorata* and *Rosa Indica Semperflorence* created the class known as *HYBRID TEA*. They became the most popular roses in those days when much greater proportion of roses, in the cooler zones, were grown protected from their sharp frosts by glass houses. In quest of new colours the then great researchist Late Joseph Pernet-Dutcher of France cross-bred H.T. roses with *Rosa Feotida* or *Rosa Leutea*. Intense pure yellow and coppery-flame colour were bred from these roses. The above named Rose Species are natives of a zone which has frosty winter and quite hot but dry summer. The progenies had greater winter-hardiness in very cold zones. During the hot and dry summer the Rose Species are accustomed to shedding their leaves in their native places but in very cold zones the summer is not so hot and never so dry so they were to some extent out of their elements with the result that their progenies were prone to die-back and fungus diseases. In the Tropics they are more out of their elements because there is no frost in the plains. During tropical summer they are not

affected but the humid heat of the rains and the stagnant moisture in the tropical plains ruin them. Accordingly they are short lived. When some raisers passed these roses as H.T. the late Rev. A. Foster-Melliar, who was considered as a great authority on Roses, wrote about pure Hybrid Teas:—"The popularity of this class owing to its hardiness, freedom of flowering and length of flowering period, has so much increased of late years that raisers of new roses hesitate to label their production anything else. The time is no doubt fast approaching when the old fashioned lines of demarcation will have disappeared, and the National Rose Society will have to evolve a new classification."

Crossing and recrossing between these highly coloured roses and H.T.'s went on producing some improvements in their growth. The National Rose Society of England, in due course, actually evolved a new classification to these roses as *PERNETIANAS* in recognition to the researches of late Joseph Pernet-Dutcher who was acclaimed in some places as "Wizzard of France". There continues a commercial racket behind the business on rose plants so it is to the interest of the distributor to pass most productions as H.T. and often declare them as 'a perfect rose', 'the best ever' etc. with the unsuspecting buyer at the losing end. I may mention one of the creations of late Joseph Pernet-Dutcher "Julien Potin" which, although not so hardy and vigorous as pure H.T. is still unbeatable as regards quality of flower with real Pernet yellow colour. Under hazy cold weather, as in England, it may turn out paler and therefore McGredy's Yellow and Marcel Gret may be more popular there. Every one of them imbibed their colour from *Rosa Feotida* but, up till recently, only Julien Potin was classed as Pernet while the other two passed as H.T. The last two are more delicate growers than Julien Potin in the tropical plains. In the tropical humid zone Julien Potin is a better grower than either Lord Lonsdale, Lord Lambourne, Lady Forteviot, Norman Lambert, Cynthia Brooke or Premier Ball all of which are branded with the hall-mark of H.T. inspite of the fact that they are all Pernetianas. The late Rev. A. Foster-Melliar's criticism about branding with the hall-mark of H.T. seems to be more important when it is amazing to find that the National Rose

Society of England has, to-day, gone to the length of classifying even Candeur Lyonnasie, Frau Karl Druschki, Hugh Dickson and Roger Lambelin as "H.T. Type". Whatever extra charm there may be in the classification H.T. the unsuspecting buyer should not be pulled by the nose. The above named roses used to be placed, since nearly half a century from their dates of introduction, under the classification Hybrid Perpetuals by the departed rose stalwarts and even to-day are classified as such by a few others. Hybrid Perpetuals, inspite of losing their popularity after the advent of H.T.'s, are not only very dependable growers but also the bold and attractive performance in their flowering season is still not surpassed by the H.T. at least in the tropical plains. They require slightly different treatment from H.T.'s so I cannot appreciate the object behind branding them under a new classification. When "George Dickson" is branded as a full fledged H.T. and Hugh Dickson etc., are now branded as "H.T. Type" why be unkind to the sweet old lady "Madam Isaac Perriere" by not allowing her the hall-mark? All the three roses have more or less, the same over vigorous growth and require the same treatment with light pruning or pegging down to flower at the same time. The slight difference in her formation of bloom should not be too much to deprive the good old lady when entirely different constitutions are being passed under that hall-mark!

When Hybrid Perpetuals have their usefulness, when it is possible to have very good growers by subdued Pernetiana blood, through mutation, why encourage an inferiority complex or commercial racketeering which leads to branding varieties under borrowed feathers? The animal Mule is a cross between Horse and Ass. Mule is an useful animal and there is no inferiority complex to need its branding as Horse. Consider for example the varieties of recent roses (1) "Confidence". (2) "Mojave", (3) "Sultane", and (4) "Cleopetra". Every one of them carry Rosa Feotida blood but all are not the same in constitution due, I believe, to different proportions of Rosa Feotida blood. It is well known that some progeny may have the defects or qualities of higher generations as natural results of throw-backs. (1) "Confidence" has been bred and inbred to "Peace". The raiser of "Peace" declared that his object behind the cross-

breeding for "Peace" was "Of producing a resistant foliage and winter hardiness". "Peace" is no doubt winter hardy and happy in cool climate because an amateur from England reported that he grows this rose to a height of 6 ft. and has counted up to 75 flowers and buds in a day. In humid tropical plains "Peace" grows barely 2 ft. high and will not produce as good blooms in two years, in spite of a longer flowering season in the tropics, the number of flowers and buds counted in a day in England. However slender may be the pure H.T. blood in "Peace" the progeny (1) "Confidence" is very near H.T. as Nature has a great hand in ordaining which blood will be infused into which progeny. (2) "Mojave" is out of Charlotte Armstrong and Signora. Although Charlotte Armstrong is out of a pure Pernet "Soeur Therese" it has subdued that blood through its other parent "Crimson Glory". Signora is not much weaker than its parent Julien Potin due, probably, mainly to its other parent "Sensation" which is a pure H.T. Therefore from calculation it seems that (2) "Mojave" should have greater percentage of H.T. blood than in (1) "Confidence" but Nature has ordained otherwise. Although a good grower and never so dwarf as "Peace", in the tropical plains, (2) "Mojave" is not so vigorous and branching as either Confidence or even its parent Charlotte Armstrong. In (3) "Sultane" and (4) "Cleopatra" not only the Pernet blood is predominant in their parents but also they have imbibed out and out Parent blood and much poorer growth with typical glossy foliage. The last two remain miserable, in tropical plains, until the weather cools down and gets dry with the approach of winter when their recovery starts with slow speed and lasts till parts of summer. I quote from an article written by a Horticultural Engineer, the Superintendent of Antibes, South of France, as published in the 1953 Annual of the National Rose Society of England:—"The Pernetianas are much affected by the heat and sometimes have a short life. Among the more interesting are Condesa de Sastago, Talisman and Opera". If the Pernetianas are much affected by the heat and sometimes have a short life even in temperate sunny climate of South of France will it not be foolish to expect them to be anything but worse in warm tropical climate? It is to be noted that even strong growing varieties like Condesa de Sastago and

Talisman are correctly classed as Pernetianas by the French expert as he is under no commercial combine to brand them under the hall-mark of H. T. Under the present day classification an amateur beginner will never suspect that he is making any error in selecting for a bed of 25 roses 5 each of Peace, Hugh Dickson, Sultane, Frau Karl Druschki and Cleopetra. The result will be very odd looking even in the coolest rose countries but will be alarming in the Tropics where the poor growers, if not suffocated to death by the over vigorous Frau Karl and Hugh Dickson, will have their shorter life still shortened. Rose growing is for the pleasure of having enough of good flowers on healthy plants under normal care, at least partly like the performance of Peace in England. Rose growing is not meant for courting the pitiable fate of a fond mother coddling a child with hopeless health. Every amateur will have that fate if he cannot have the proper guidance to select varieties suitable for his situation. Just as a Polar Bear cannot be happy in the Tropics a rose with plenty of Pernet blood and those that are excellent in the cold countries can never be happy and up to the mark in tropical plains. When some Pernet roses are regularly inheriting more of H.T. blood and can be managed in the tropics why not classify them as Hybrid Pernetianas instead of branding all and sundry as H.T. and forcing the good HYBRID TEA to be bereft of its real significance and actually mean HETEROGENEOUS TYPE?

Millions of Roses are grown in the cooler zones of the world under glass houses to protect them from the very cold and frosty weather which prevents some of the finest bloomers to freely produce attractive cut-flowers in a saleable condition. Take for example the good rose Marechal Neil which in cool zones can never flower to such perfection in the open as it does under glass houses. A rose tree is expected to please its owner for about 10 years with prolific growth unless its constitutional debility causes its ruin in a climate it cannot withstand. Of late the majority of amateurs have greatly increased in the cold zones who grow their roses in their open gardens without any protection of glass structure. The National Rose Society of England is, of late, really national in finding out from their unprotected Trial Grounds as to which varieties have winter hardi-

ness. Although previously new roses grown under glass houses were allowed to be exhibited for assessment about awards from the National Rose Society, now they rightly refuse to grant any award to a rose, however good it may be under glass protection unless it can pass three years' test in their open Trial Grounds. Thereby the Society prevents new roses from being a source of worry to amateurs in very cool zones. In this connection I cannot too strongly request my readers to carefully study the following quotations from an address by Herr Wilhelm Kordes in the International Rose Conference, held after 30 years, during 1958. Mr. Kordes was introduced in the Conference as "The greatest rose man of all time". His production of winter hardy roses merit that introduction. Mr. Kordes said:—"However, the original race of Hybrid Teas were failures in our Hamburg climate. There were great losses of plants winter after winter and the ups and downs of the thermometer took the soul out of them. Roses of the nineties and the first decade of the 20th century were not garden roses as we know them to-day. '*Rosa foetida*' (the origin of Pernetiana Roses) is not very hardy. It will stand a normal winter but temperatures near zero kill all the shoots above the snow. Despite this, some of the original varieties sent out by Pernet were very frost hardy, the most outstanding example being '*Souv. de Claudius Pernet*'. I know of a plant of this variety which has stood all vagaries of our climate, and certainly is still standing in its place, neglected, but going strong since 1920." Summer and autumn are the two seasons for roses in the cold zones. Summer of the cold hazy zone, if not cooler, is nearly as cool as the winter of many parts of the tropical plains while the autumn of the cold zones is definitely much cooler than most parts of the Tropics in winter. And there are some parts of the tropical plains, for example some parts of southern zones and major parts of southern coastal areas, where excepting hot and rainy seasons there is no winter as such in the period which intervenes the hot and rainy season. The winter hardy modern roses are to a great extent winter loving and I say how. The rose "Bridal Robe" not only got a gold medal but also a 250 guinea Cup in England. I had imported it the second time after the first lot proved a failure. There was a cold spell in Upper India during the end

of January, 1959 and the weather was hazy and drizzling for two days. Although only two or three disappointing flowers were obtained from the miserable plant between Nov. to January, the cold and hazy spell invigorated the plant to produce a much better bloom on a stem about 14 inches long. It should be noted that the better bloom did not, even then, reach the standard of just a normal bloom of Mrs. Charles Lamplough. With the passing of that weather, when the minimum temperature did not go below 45 degrees F., "Bridal Robe" reverted to as miserable existence as ever with little growth although my garden is 800 feet above sea level. So these are the roses which are happy in a weather which are very much colder than the coolest parts of tropical plains and naturally they receive awards from the open Trial Grounds of the N.R.S. of England. Had the good Marechal Neil been a new production to-day it would not have the ghost of a chance of attaining requisite marks from the open Trial Grounds of the British Rose Society. I hope I need not impress further on the utter futility of trying to have success, in the warmer parts of the Tropics, with roses raised under the object of acquiring a constitution fit for frosty zones. It should not be forgotten that success with a rose does not mean production of just a few indifferent flowers, during the entire season, on a plant which is out of its elements in an alien climate.

The classification *POLYANTHA* came out of the Greek words "Polys" meaning many and "Anthos" meaning flower. Many flowered cluster type roses were classified as such. The hybrids which produced dwarf growth were classified as *DWARF POLYANTHAS*. Dwarf Polyanthas being crossed with large flowering roses produced a type with larger flowers and/or larger growth which had the classification *HYBRID POLYANTHAS*. Although some reputed old firms of European rose growers still persist in classifying them as Hyb. Polyanthas the American dealers have now blessed this type with a new terminology *FLORIBUNDA* and the National Rose Society of England has followed them. The Floribundas have been steadily gaining much popularity owing to their highly decorative effect due to their profusion of blooms. When a "Floribunda" and a large flowering type is crossed it is natural that some progeny will have

the clustery profusion of the Floribunda while others will have flowers partly like the large flowering type without the typical profusion of the Floribunda. Just as the hall-mark of the H.T. the popularity of the Floribunda (Hyb. Poly.) has been causing some new roses to be classified as Floribunda regardless of the fact that their flowers are nearly as big as a medium sized H.T. and are not produced with as much profusion as a Floribunda should. To quote an example it may be mentioned that "Independence" is branded by some as Floribunda. Some old established rose dealers classify "Independence" as H.T. "Independence" does, of course, produce several flowers on very strong basal shoots but there are so many other pure H.T.'s which produce as many flowers on such shoots. If one of the best specimens of "Independence" be compared with a representative Hyb. Polyantha like "Else Poulsen" or any of my productions like "Rishi Bankim" or "Shobha" (raised out of a bunch flowering type of Rosa Indica Semperflorence) I am sure "Independence" will look like a pigmy, in comparison, if the abundant flowering habit of a rose be the actual significance of the term Floribunda. I do not think that the gem of a rose like "Independence" needed borrowed feathers to have an extra boosting to have a place in every garden. The National Rose Society of England has found out a via media in classifying these roses as "*FLORIBUNDA—H.T. TYPE*".

The rose world has recently been confronted by the American classification over the rose "The Queen Elizabeth" as "*GRANDIFLORA*". One of the parents of this outstanding rose is a Floribunda as in the case of Independence. "Queen Elizabeth" is taller than many H.T.'s not to speak of "Floribundas". By the term Grandiflora a grand (large-sized) flower is naturally expected, but the flowers of this rose are of the size of only medium sized H.T. and never larger than even "Picture" or "Radiance". Excepting strong basal shoots or quite strong laterals this rose does not produce more than one flower per stem. Although "Golden Dawn" is not a tall grower it can produce as many flowers, on strong basal shoots, as Queen Elizabeth and it will be evident from the illustration of a shoot of Golden Dawn with buds. Many other roses, when well grown, occasionally produce strong basal shoots every season



FLOWERING SHOOT OF "MISS CYNTHIA FORD"
Grandiflora?

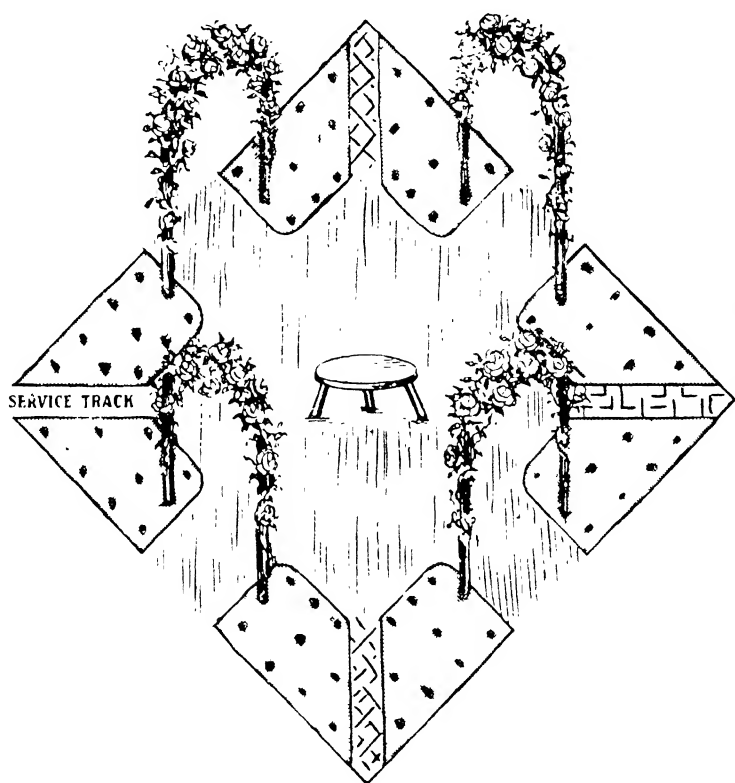


FLOWERING SHOOT OF "RADHARANI"

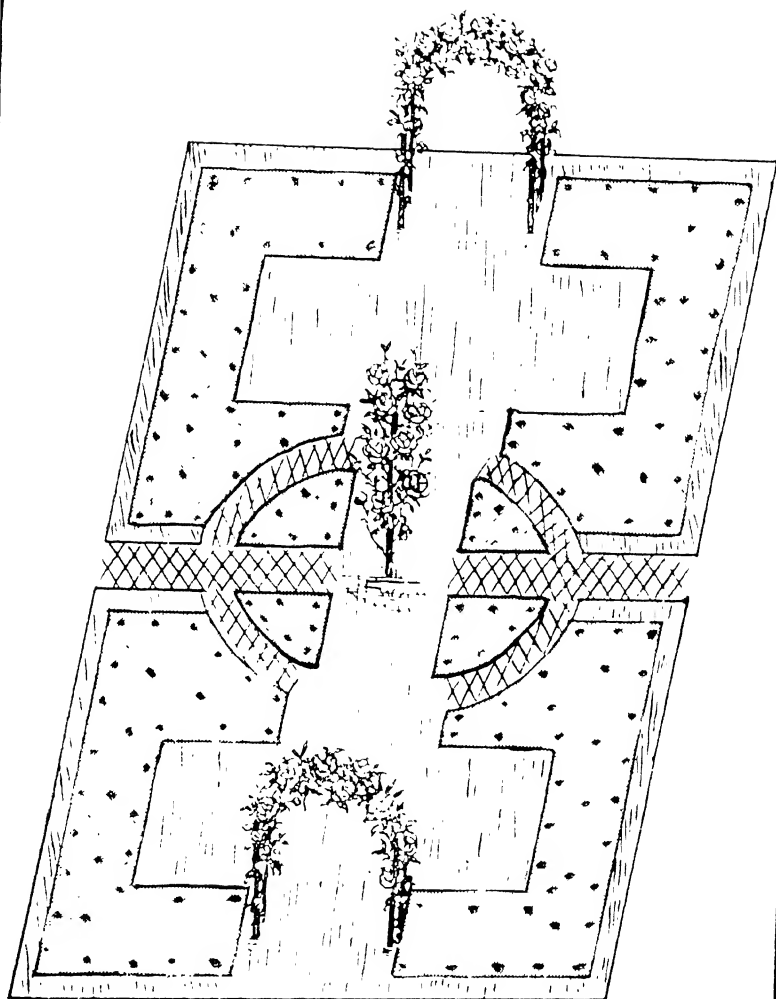


FLOWERING SHOOT OF "GOLDEN DAWN"
Grandiflora?

If there be any justification for the term GRANDIFLORA on the ground that the rose "The Queen Elizabeth" produces many flowers on some stems, the above illustrations will prove that some pure H.T. roses produce as many flowers on some strong shoots. Readers are requested to study pages 90 and 91 of this book and decide for themselves.



SCALE - 1 INCH = 10 Ft.



SCALE - 1 INCH = 10 FT.

Garden Design No. 4.

with quite a number of blooms on each of such shoots. In the 1934 Annual of N.R.S. one such shoot of "Oswald Sieper" had been illustrated with 7 specimen blooms. The illustrations of two of my productions "Champa" "Radharani" will show how many flowers on each basal shoot are possible of these pure H.T. roses. The shoot of "Radharani" was photographed when the flowers were mostly about to drop off the shoot. Radharani produces flowers at times twice the size of Queen Elizabeth. After giving a foot note "One or two of these have been called GRANDIFLORA in America" the National Rose Society of England has classified this rose as "Floribunda—H.T. Type".

Classification of the Rose, like other plants, is to distinguish different types of the particular section of plants according to their distinguishing diagnostic characters. Classification should neither be arbitrary nor meant to serve commercial boosting. If it be argued that the modern classifications are not arbitrary but are meant to help the general rose-fanciers would it then be convenient for them if various types of roses are placed under simpler sections like:—Large bloomers, medium bloomers, small bloomers, Clustery bloomers, Clustery small bloomers, Summer bloomers, Summer & Autumn bloomers, Perpetual bloomers, Tall growers, Very vigorous growers, Shrubby growers, Moderate growers, Dwarf growers, and Climbers instead of passing Pernetianas and Hybrid Pernetianas as H.T., H.P.'s as H.T. Type and coining Floribundas, Grandifloras or probably the future Glamourifloras, Superbifloras or Herculisfloras and so on? No buyer would grudge patronizing a researchist who is engaged in effecting real improvement of the Rose at great expenses and continuous hard work with serious thinking and observations made in the field for years before distribution of a new rose. The buyer only wants that varieties declared to be heavenly do not prove to have little earthly chances; he wants a peaceful pleasure and not a source of worry or disappointment behind his purchases.

Selection of varieties.

It will be a folly to have pessimistic view about all new roses. On the contrary most fanciers, particularly in the Tropics

where there is no Rose Society and Trial Ground yet for correct assessment, have a too optimistic view as the overflowing descriptions with glittering illustrations actually add to the optimism. I do not mean to say that all the descriptions and illustrations are entirely contrary to facts but I do say that climatic differences often falsify the impressions gained from even honest descriptions about them, particularly so when the type does not suit the climate and situation. I cannot too strongly request my readers to consider the report of an eminent British rosarian, Mr. Harry Wheatcroft, after his tour in different rose growing districts of U.S.A. I quote the relevant passage from his article published in the 1954 Annual of N.R.S., England:—"So many excellent varieties which do well in the cooler districts have to be discarded because they cannot make the grade under semi-tropical and arid conditions which obtain elsewhere. Several varieties which are paragons of perfection here I found very disappointing in California, whilst in Portland, Oregon, a cooler and damper climate, they reminded me of home". If the varieties that are "Paragons of perfection" in Britain be, according to the expert Mr. Wheatcroft, "Very disappointing" in California and if according to his report so many varieties excellent in England and such other cool places "Have to be discarded in semi-tropical and arid conditions" what should be their fate in tropical countries which are not generally arid but quite wet as well as hot, to the detriment of roses, during the heavy tropical rains? Unless a rose is of healthy growth and is sufficiently free flowering I would not call it a good rose even if it has heavenly colours and all the fragrance of the world concentrated into it. If through constant coddling its life has got to be somehow prolonged for the sake of just a few flowers, and below grade, in a year why should I not leave it in favour of any of the impressive looking Orchids which will produce glorious blooms, for a short period every year, without so much worries? And we should remember that with proper selection there can be very satisfactory roses for every situation.

Although I have so far come across nearly 2000 varieties I would have listed still fewer roses than those discussed hereafter because a large list is rather embarrassing, if not boring, while making a selection. My intention is not to publish a glossary

of varieties but I have to include quite a number of them so that fanciers may know about my experiences about some such varieties which the present day rosarians, particularly in India, may be curious about. There are very few roses without any beauty but even if each of them be good it has to be admitted that some are definitely better. The fancier desires to have the better varieties whether they are new or old. In order to curtail bulk of the list I have not taken into account quite a number of varieties which I have found to be either superseded or lacking in enough of qualities. Many of such varieties have already been ousted from the lands of their birth and I mention a few of them:—Adele Crofton, Ampere, Anne Jibens, Autumn, B. S. Bhattacharji, Caprice, Catalonia, Courtney Page, Delightful, Dunkirk, Eclipse, Effect, F. J. Harrison, Fascination, Fragrance, Girona, Gorgeous, Gwyne Carr, Harry Kirk, Hawlmark Crimson, Hinrich Gaede, Hoosier beauty, J. Otto Thilow, Kidway, King George V, Margaret McGredy, McGredy's Coral, McGredy's Pride, Max Krause, Miss Rowena Thom, Madam Cochet—Cochet, Norman Lambert, Queen Alexandra, Trigo, White Ensign etc.

I have marked such foreign varieties with double asterisks(**) as I believe to be dependable growers under tropical conditions. Names of varieties produced by me have been written in capital letters for easy identification. I have not been partial to my productions by extoling them in the descriptions. To show how some varieties are at times extoled in some foreign catalogues, I quote a description of the rose "TAHITI" as appeared in the 1956 Annual of the National Rose Society of England under the same purpose:—"*Where have these enormous flowers drawn the ardent life that pulsates in them? Are not such excess of beauty the fruit of exotic saps? At the sight of this amber yellow following the chrome yellow of the buds, then enriched wherever exposed to the sun with a suffusion of carmine lacquer, we evoke the happy isle in the shimmering infinite of the Pacific. Oh Tahiti, thou who sendest forth thy palms to meet the waves, thou who art caressed by the breath of the trade winds, thou who art engarlanded with dance and flower, thou wilt not deny the magnificent vaporous appearance of this rose, nor its exceptional vigour, nor its astounding abundance of bloom:* "The description of the new rose

"Texan" from a foreign catalogue, mentioned in the body of list is no less amusing.

It is not quite unusual to regard the prize or certificate winners, from foreign rose societies, to be the best roses. They are actually so in those parts of the world where they have won. In former days, when new productions grown under glass protection in the cold zones were eligible for awards, many of the prize winners were almost equally good in the Tropics. It should be noted that, under the present imperative condition of awarding prizes from assessment of performances only in the open unprotected Trial Grounds in zones with sharp frost or hazy sun, the present day awards are mostly of little importance in the Tropics. In my descriptions about the roses I have, therefore, refrained from mentioning awards if any.

Just as I have commented upon merits and demerits of each foreign production, according to its performance under tropical non-frosty climate, I have not kept back the demerits, if any, of my productions. I have refrained from mentioning year of introduction of each variety because I feel that the utility of a rose is the main consideration. If anybody feels pride in possessing the latest ones, irrespective of their performances in tropical climate, he can very well consult catalogues of some commercial people who may be eager enough to welcome a preference for the very latest. A recent outstanding introduction is, of course, worth having but to real connoisseur the merits of a rose are of real importance while the date of introduction is very minor.

Abbreviations about classifications.

- B.—Bourbon. H. B.—Hybrid Bengal (Styled as Hyb. China)
- H. P.—Hybrid Perpetual. H. T.—Hybrid Tea.
- T.—Tea. N.—Noisette (Generally bunch flowering climbers.)
- C. T.—Climbing Tea. Clg.—Climbing.
- Rug.—Rugosa (Japanese). D. P.—Dwarf Polyantha.
- Hyb. Poly.—Hybrid Polyantha, also known as Floribunda.
- Flori-H. T.—Floribunda H. T. Type.
- H. M.—Hybrid Musk. H. Pert.—Hybrid Pernetiana.

LARGE FLOWERING ROSES

Dependable varieties are marked with two asterisks thus (**). Height stated against each variety, to help grouping, is approximate. According to soil condition and treatment the heights will vary. Generally they are better if planted $2\frac{1}{2}$ ft. to 3 ft. apart.

* * **Admiration** (H.T.)—Cream shaded pink, well shaped very large blooms. Healthy compact growth of about $2\frac{1}{2}$ ft. Definitely losing popularity and I think 'Armagh' ousts it with better colour and more compact flowers.

Advocate (H.T.)—Rich crimson, fragrant and free flowering but there have been so many better crimsons to-day that the days of this rose are over.

* * **ANANDA**. (H.B.)—Deep cream shaded coppery pink, opens to silvery pink fragrant flowers of medium size. Nothing spectacular but it has an ideal profusion; strong shoots produce over 20 blooms on each. Height about 4 ft.

* * **Andre Le Troquer** (H. Pert.)—Its golden tangerine-orange is most outstanding in any collection. Well cared for plants produce beautiful exhibition blooms. Not unhealthy. Height about $2\frac{1}{2}$ ft.

Angele Pernet (Pernetiana.)—It is useless to try this bad grower in the temptation of its orange-chrome colour which does not last in the too few petals.

Angeles Mateu (Pernetiana)—The salmon pink shaded orange colour is attractive but the plant is very unhappy without quite cool weather.

Ardele (H.T.)—Creamy white progeny from Peace. Very large flower with good shape. Pernet blood seems to be considerably eliminated. If this new comer proves to be a good grower it will be wanted in the tropical plains.

- * * **Armagh** (H.T.)—Buff shaded peach pink, very larged well formed compact flowers with enough of petals. Health of plant and flower carriage satisfactory. Hight about 3 ft.

AVINASH (H.T.)—Outside of petals coppery orange, inside apricot cream, long pointed buds. An improvement on the British Gold Medal winner "Old Gold" but not a rose for those who want compact full flowers. Very free flowering healthy plants about 2 ft. high.

- * * **Bacchus** (H.T.)—The famous British rosarian Mr. W. E. Harkness is reputed for his very candid descriptions and I am tempted to quote him:—"Everyone seems to describe Bacchus as bright scarlet (in which case Mars will be the appropriate deity) but this colour is surely too vivid to suit it". Under tropical sun it is hard pink to light red. It is a very large high centred flower carried boldly on good growth about 3 ft.

- * * **Baden-Baden** (H.T.)—Bright crimson fragrant rose which I have not grown myself but some fanciers have reported that it is satisfactory.

Ballet (H.T.)—A new pink rose with enough of petals but quite scentless. When there are so many well tried pink roses of great merit I do not think this scentless one will be much appreciated in the Tropics.

BAPUJI (H.T.)—White shaded lemon, creamy yellow towards the heart. Under bright sun it is milky white with creamy heart. High centred superb blooms always keep the head erect. One of the finest shaped exhibition blooms on healthy growth about 3 ft. high. Has a fragrance but not very free branching although never a shy bloomer. Amateur expert Prof. A. R. Shaha, C.M.P. Degree College, Allahabad University, opined

that the famous foreign rose 'Ardele' is no better and said that considering the nature and heart of the very great person the naming has been apt. This rose has been liked by Messrs Cants, the famous British rosarians, who received it under my research number PBS/75.

Barbara Richards—I am convinced that a genuine plant of this gold medal winner in England can never be satisfactory in tropical plains.

*** * Bayadere (H.T.)**—The N.R.S. illustration of this very good rose depicts it as pure orange but in tropical climate it is coral pink with light orange shade in centre. Very large full flowers of exhibition size are freely produced on healthy but not bushy growth about $3\frac{1}{2}$ ft.

Beaute (H. Pert.)—Slightly paler than Madam Joseph Perraud colouring with less petalage. On the credit side of it only the date of its birth is heavier than that of Perraud so there is little to be enthusiastic about it in the Tropics.

Belle Blonde (H. Pert.)—May be acclaimed in very cold climates but considering all round performance it has no chance against Madam Curie in the Tropics.

Beryl Ainger —A creamy yellow sport from the renowned 'The Doctor' with similar fragrance.

Bettina (H. Pert.)—Very attractive orange colour, full flowers on erect stems. Plants seem to be healthy on dwarfish compact growth. If this new rose keeps up to its promise on full trial it will stay in the Tropics.

*** * Betty Uprichard (H.T.)**—Unless the temperature is near about 45 degrees F. it is not possible to appreciate how it got the gold medal in England. Salmon pink inside, outside carmine. Height about 4 ft.

Black Boy —The coloured illustration issued by Messrs Kordes may attract some people but there is nothing to be enthusiastic about this rose of a "Centifolia" class which is summer blooming in Europe so it will rarely bloom in warm climate and will not be black. It is amazing that one dealer in roses has catalogued it as Floribunda.

Black Prince —Rose connoisseurs will pardon me for inclusion of this in the list. Some novice enthusiasts, probably having heard about it from their forefathers, still enquire about it being ignorant of the fact that this has been completely superseded long ago. It is more pitiable that some Indian dealers exploit their ignorance and the description in the catalogue of a Government Nursery "H.T., Blackish crimson; vigorous; dwarf." is amazing. Beginners should be told that this H.P. rose (not H.T.) is tall, shy blooming excepting in its season and much deeper colour with free flowering habit without tall growth can be had in several other varieties of recent raising.

Blue Boy —The coloured illustration issued by Messrs Kordes may attract many fanciers but they should be careful as it is not only NOT blue, being just purple, but also being of "Centifolia" class is summer blooming in Europe so it will very rarely bloom in the tropical plains. It is amazing that one firm of rose dealers declares it to be Floribunda.

Bridal Robe —White with light lemon shade. Refuses to grow even in partially cooler parts of tropical plains.

* **Brilliant (H.T.)**—This English name is out of its original name "Schlossers Brilliant", renamed "Detroiter" in America. It should not be confused with an older English rose introduced under

the same in 1914. Colouring of the present day "Brilliant" is brilliant crimson ; it is capable of producing big exhibition blooms but is scentless. Height about 3½ ft.

Burnaby (H.T.)—Declared as yellow with vigorous growth and outstanding blooms in England and such other cool places. In the coolest of the tropical plans it is only pale yellow to creamy white in warmer places. A well formed bloom but the growth is disappointing.

* * **Cannes Festival** —An impressive yellow deepened to amber yellow in the inner portions of petals. When it grows and produces its flowers in fairly cool weather it seems better than *Madam Curie*—the most satisfactory yellow for the tropics. I was afraid this *Pernet* will be a failure in our climate because the imported plants died back almost to the ground. Luckily a twig appeared again and on being set to our local stock this variety has been behaving very well and high centred exhibition blooms with enough of petals are obtained by good manuring and light pruning. Height about 3 ft.

Caledonia —Although purer white it never equalled the quality of *Mrs. Charles Lamplough*. *Virgo* is still more white so I do not think there is any more room for it.

* * **Capt. F.S.H. Cant** -Salmon pink with deeper shade on the reverse of petals. Very well shaped large and full exhibition bloom if the plant is well fed and cared for. Height about 2½ ft. It is H.T.

* * **Caroline de Arden (H.P.)**—Never so tall as its type and a regular bloomer with huge size and very sweet scent. Not as free blooming as

H.T. but it still has a place in tropical plains. Height about 3 to 4 ft.

* * Caroline Testout (H.T.)—Silvery rose pink ; the attraction of its colour is now outweighed by its globular shape. Flowers of good size. Height about 3 ft.

* * Christopher Stone (H.T.)—The brilliancy of its crimson is greatly enlivened with velvety scarlet grow. Flowers are large full and very sweetly scented. If you are not fastidious about the shape of the open blooms it is a satisfactory rose. In California it is reported to grow 5 ft. high with flowers up to 8" across. Tropical climate cannot make it so very successful but its bushy healthy growth of about 3 ft. flowers with satisfaction.

CHAMPA (H.T.)—If you want a nice yellow bud with delicious fragrance you may rely on this rose with good growth up to 4 ft. Plenty of flowers can be expected under normal care. The buds are golden yellow to light yellow at edges—not Pernet yellow—while the open flowers are white.

* * Charles Dingee (T.)—Cream shaded blush pink ; high centred perfect buds open to very full flowers—rather too full—with large size. Vigorous growth about 3 ft.

Charles Gregory (H. Pert.)—Mr. Oliver Mee, O.B.E., ex-President of the N.R.S. of England states in 1957 Rose Annual:—"At its best in a cool weather". If it be so in a weather considered cool in England I would not like any other fancier in the Tropics to prove a fool, like myself, in helplessly looking on to its miserable existence.

* * Charles Mallerin (H.T.)—Blackish velvety crimson splashed glowing scarlet-crimson. Wonderful fragrance in the large and wide petals which

would have made it a great rose had there been more of them. At times a strong shoot will unbalance the shape of the plant and may require shortening. Height about 4 ft.

Charles P. Kilham —Orange red which fades too much under tropical heat. With the present day better roses few people would like it.

* * **Charlotte Armstrong** (H.T.)—The Pernet blood is so much eliminated that there is too negligible a trace to classify it as H. Pert. Rosy pink to carmine red illuminated with yellow from base of petals. Very good bushy grower to about 4 ft. Can produce outstanding blooms of exhibition quality.

Cherry (H. Pert.)—With so many sharper bicolours this rose has neither the growth nor the quality to expect a room in tropical gardens.

* * **Chief Seattle** (H.T.)—Healthy and free flowering growth to about 3 ft. Very large well shaped blooms with many petals. Colour light yellow occasionally flushed light pink.

Cleopatra (Pernet.)—A gold medal winning recent bicolour acclaimed in frosty regions. In comparison to Tzigane I find the red colour more intense but the contrasting yellow paler and diffused with red on the other side; flowers much inferior to Tzigane in quality. Whatever attraction may be in the name I find Tzigane's quality has not even been reached by it, even in cold countries, and I do not know the reason behind the award when it is no improvement on Tzigane which did not get the favour of gold medal from N.R.S.

* * **Clovelly** (H.T.)—Bright salmon pink, good buds, on long stems, open to quite large wide blooms on good growth about 3 ft. high.

Comtesse Vandal (H. Pert.)—One of the most impressive

blooms in a weather not warmer than a minimum of about 50 degrees F. if through good cultivation the health is maintained. Though not a strong grower it is possible to keep it going. Height about 2 ft.

- * * **Confidence** (H.T.)—The Pernet blood is so negligible that it is almost pure H.T. and a most worth while rose for tropical climate. Light pink with deeper flushes illuminated with yellow from base, deliciously fragrant. Healthy prolific growth freely produces so big flowers that if 'Queen Elizabeth' be classified as Grandiflora it should be classified as Superbiflora!
- * * **Conrad F. Meyer** (Rug.)—Attractive silvery pink, impressively large and full globular flowers with very sweet scent. Good as an isolated shrub; you are to wait for its beautiful blooms. Height about 5 ft.
- * * **Contessa de Sastago** (H. Pert.)—A sharp bicolour of red and pure yellow. Very vigorous growth to about 4 ft. and quite free blooming with large flowers.
- * * **Crimson Glory** (H.T.)—Deep velvety crimson, ideal in shape as well as fragrance. Free flowering but unless the growth is induced to be vigorous flowers slightly droop. Growth often less than 3 ft.
- Cynthia Brooke** (Pernet.)—Considered as one of the excellent yellows in England and such other cool places but it is miserable and short lived in the tropical plains.
- Dame Edith Helen** (H.T.)—This once famous pink cannot be managed in the Tropics. Even its climbing sport is not a good grower.
- * * **DEENABANDHU** Rev. ANDREWS (H.T.)—Heart of flower chamois yellow illuminated with a light pink tone, the blending of colour attractively lighten towards the outer parts of

open blooms. Perfectly shaped graceful flowers of medium size. Prof. A. R. Shah of C.M.P. Degree College, Allahabad University, after full trial wrote about this rose: "I do not know of any other large flowering rose which can equally justify the epithet 'abundant bloomer'. To-day I have 40 buds on the plant. I like the formation and the soothing colour".

Detroit (H.T.)—Vide "Brilliant". This is the American name of the rose Schlossers Brilliant. Dr. Thomas, President of the National Rose Society of Victoria, Australia, in his address given in 1958 International Rose Conference in London has said that "name changing is blatantly and utterly dishonest". He has regretted that "some of the world's greatest Rose Societies are guilty of continuing to publish false names while these practices are not allowed in other fields of commerce."

*** * DEEPAK RAG** (H.T.)—Its unique colour was appreciated by Messrs Cants, the famous British rosarians, when it reached them under my research number PBS/107. Prof. A. R. Shah of C.M.P. Degree College, Allahabad University, said its capsicum-red colour is brighter than the new foreign rose 'Paparika' which has been acclaimed abroad. Prof. Shah suggested its name as 'Agnima' or 'Anurag'. Its unfading colour, in any weather, so attracted other fanciers that this was suggested to be honoured with the great name "Jai Hind". While disagreeing I was in a fix about giving an apt name to the wonderfully burning scarlet-orange glow of the rose which is brighter than 'Independence'. I remembered the story that Tan Sen was burnt while singing

“Deepak Rag” so have given that name to this rose. It has a fault of not having enough of petals but this informal decorative rose compensates with enough of flowers on healthy bushy growth over 3 ft.

- * * **Diamond Jubilee** (H.T.)—Light buff shaded deep buff lower down the petals. One of the most superb roses in shape, size, and freedom of flowering. Very healthy growth to about 4 ft. Fully dependable either as a garden rose or for exhibition.

Dickson's Perfection —Not much acclaimed in its land of birth—Britain—but whatever ‘perfection’ it may claim elsewhere it is not worth while in tropical climate.

- * * **Director Guerin** (H.T.)—Centre golden yellow outer petals creamy white, can produce very large exhibition blooms. This moderate grower performs better with light pruning and good feeding.

Dorothy Anderson (H.T.)—Beautiful rose pink with very good shape. Not a care free rose but a rose for the exhibitor who does not mind to tackle a moderate grower for a grand bloom at times.

Dorothy McGredy (Pernet.)—Unhappy and short lived in Tropics but there is nothing to repent because the bicolour effect of the unimpressive blooms is inferior even to the older rose *Contessa de Sastago*.

- * * **DR. BUDHEN** (H.T.)—If the good recent rose ‘Bacchus’ can be boosted as Scarlet this could have been trumpeted as bright scarlet. It is only glowing crimson with bright red shade. Quite a bright rose with good shape, large size and very free flowering habit. Has some sweetness in cool weather. It will be considered as improved Charles K. Douglas. Height about 3 ft.

THE JOURNAL OF THE
ROYAL ANTHROPOLOGICAL INSTITUTE



RANI JHANSI



KARUNAMOY

- Dr. F. Debat** (H.T.)—Also known as La Rosee, Decent coral pink. Produces huge flowers without coarseness and with some fragrance. Not only the petals but also the foliage are broad. Height about 3½ ft.
- Dutchess of Athol** (Pernet.)—The bronzy orange shaded pink is attractive but it is a very cool weather rose with delicate health prone to Black Spot fungus disease.
- Earl Haig** (H.T.)—Deep red to crimson. This is better than Edward Mawley. Very sweet scented impressive flowers of rather globular shape but the growth is too low and the very full flowers ball in adverse weather.
- Eden Rose** (H. Pert.)—Fuller and deeper pink than its half brother Dr. F. Debat but the formation of bloom is snub-nosed in comparison to Dr. F. Debat. Growth so moody that in spite of coaxing you cannot be sure when it will send out a strong shoot to produce a flower which will convince you that it may be retained.
- * * **Edith Nellie Perkins** (H.T.)—Coppery-red shaded orange on the outside of petals, inside salmon pink. A nicely shaped attractive rose in cool weather. Vigorous growth about 3 ft.
- * * **E. G. Hill** (H.T.)—Although described as bright scarlet it is nothing more than bright crimson or glowing crimson. Very sweet scented full flowers of large size but not of the best shape to-day. Height about 3 ft.
- * * **Elite** (H.T.)—Orange pink slightly flushed yellow. Good shape in cool weather, very fragrant large bloomer with prolific growth about 3 ft. high.
- Elizabeth Arden** (H.T.)—Almost pure white, nicely shaped fragrant and full flowers of large size. A cool weather rose of moderate growth but

repays good care with a few pleasing blooms.

- * * **Elizabeth Vigneron** (H.P.)—Pure pink, well shaped very large blooms with very sweet scent. Well grown plants pruned late in season produce a mass of blooms with a second crop of still better flowers to compensate its poor productiveness in other parts of the year. Growth 4 to 5 ft.

- * * **Ellinor Le Grice** (H. Pert.)—Deep pure yellow which does not fade too soon. Massive exhibition blooms on strong stems. Not as vigorous and branching as pure H.T.'s but it is not quite poor in growth and amply repays a little extra care. Growth about 2½ ft.

Emily (H.T.)—Silvery rose pink, huge exhibition blooms are freely produced on strong shoots. Worth a place in every garden in tropical climate. Height 3 ft.

- * * **Ena Harkness** (H.T.)—The fiery glow of its rich crimson is very outstanding with perfect shape when the minimum temperature is below 50 degrees F. As it does not have enough of petals it is not glorious in warmer weather. Height 3 ft.

- * * **Eternal Youth** (H.T.)—The name is a translation from the Italian name Eterna Giovinessa. Light salmon pink, long buds open gradually to very large quite full flowers on erect stems. FrAGRANT. The blooms are ideal. Height about 3 ft.

- * * **Ethel Sandy** (H.T.)—Soft yellow shaded apricot yellow. Can produce huge blooms with good shape. The strong growth is not quite bushy otherwise it is a first class rose. Height about 3 ft.

- * * **Etoile de Holland** (H.T.)—Brilliant deep crimson, wide petals form a good shape in the half open stage. Very fragrant flowers with moderate full-

ness. Vigorous leafy growth about $3\frac{1}{2}$ ft. high.

- * * **Etoile de Lyon** (T.)—Pure sulphur yellow of a light shade, large and fine shaped flowers, with too many petals, which are better when the weather is less cool. Quite bushy vigorous prolific growth about $3\frac{1}{2}$ ft.

Everest (H.P.)—Creamy white. The tall growth is so shy blooming that it is useless in the garden.

- * * **Faience** (H.T.)—Clear peach pink with yellow reverse. High centred full flowers are really beautiful. The Pernet blood is very greatly subdued so it is a good grower in the Tropics. Deserves popularity. Height about 3 ft.

- * * **Fantasia** (H.T.)—Intense golden yellow, lighter at the edges of petals. Although the full flowers are not big the buds are very fine with telling colour. Very little of Pernet blood. Quite free flowering and worth having. Growth about $2\frac{1}{2}$ ft.

- * * **First Love** (H.T.)—Soft pink shaded rose and coral. Not a rose for those who are keen about size and fullness; it has a nice decorative bud. Height about $2\frac{1}{2}$ ft.

- * * **Flaming Sunset** (H.T.)—Whatever Pernet blood it has inherited it has been much subdued and grows to bushy plants of medium height in the Tropics. Orange red with yellow reverse. Very attractive flowers of medium size are freely produced. Height about $2\frac{1}{2}$ ft.

- * * **Frau Karl Druschki** (H.P.)—This glorious white rose is at its best if allowed to grow as a large shrub with light pruning. In shape, size and colour it is still a superb rose and hard to supersede. Height 5 to 6 ft.

- * * **F. K. Druschki Thornless** (H.P.)—No difference from the above excepting growth which is dwarfer and entirely thornless.

Fred Howard (H. Pert.)—Rich yellow flushed pink, yellow be-

comes lighter under difference of weather ; large, well formed quite full flowers. It is worth taking care of. This American rose has reached me recently and under the short trial I feel it may be worthwhile.

* * **Fred Streeter** (H. Pert.)—A new light yellow rose with good shape and plenty of petals which I hope will prove to be a good grower about 3 ft. high. Flowers of large size are often produced several together when the plant is taken care of.

Gail Borden —A new rose which I have not yet tried. If it proves hardy in tropical climate this will be worth having.

Gay Crusader (H. Pert.)—I imported it twice. Each time it was short lived. The flowers lacked petalage and the bicolour effect is much less sharp than in other popular varieties.

Geheimrat Duisburg (H. Pert.)—Pure yellow with a reputation in Europe. Here it is not so intense as either Speck's Yellow or Julien Potin. Growth is also too moderate and the medium sized flowers are inferior even to Fantasia.

* * **General MacArthur** (H.T.)—Bright red, very sweet large flowers with enough of petals which are loosely arranged. One of the present rose authorities in England declares its growth to be only 'moderately vigorous'. In the plains of northern India the growth is very vigorous and I remember a hedge of this rose, about 4½ ft. high in Patna under the care of late Sir Leonard Adami.

* * **General Stefanik** (H.T.)—Although sent out as H.T. this looks like a H. P. and flowers freely in its season if treated like H.P.'s. Apart from its very sweet scent there is little to its credit although some people are anxious to have it

for its peculiar colour of steel-blue on majenta-violet ground.

- * * **George Dickson** (H.P.)—In 1952 a Vice-President of the National Rose Society of England, wrote an article discussing about "Great" roses in his estimation. He mentioned this rose as one such. Allowed to grow as vigorous as it can, lightly pruned late in the season or strong shoots pegged down, this rose produces so perfect flowers that the term "great" seems fully justified. Although muddled into H.T. class it is a H.P. with real masculine heft usual to this class of roses. Its velvety crimson-scarlet colour adds to the charm of the superb exhibition blooms which are often too heavy for the stalk to hold erect. Height 5 to 6 ft.

Gertrude-Gregory (H. Pert.)—A yellow sport from Lady Belper with not enough of intensity, in tropical weather, to be enthusiastic about. With other better growing deeper yellows it does not interest me.

- * * **Glory of Rome** (H.T.)—Also known as Rome Glory, Gloira dî Roma and Glorie de Rome. Colour rosy red to carmine pink according to weather. Some people very wrongly style it as Red Dame Edith Helen because apart from growth the flowers have no similarity nor the fragrance of D. E. Helen. More an exhibition rose than a garden rose. Erect growth about 4 ft.

- * * **Golden Dawn** (H.T.)—Excellent buff yellow with pinky flush in buds and guard petals. Nice bushy and leafy plants produce many flowers of good shape and size with light pruning and good feeding. Height about 2½ ft.

- * * **Golden Mainz** (Pernetiana)—Deep golden yellow, snub-nosed globular flowers on indifferent growth in the Tropics.

* * **Golden Masterpiece** (H. Pert.)—"Scarcely gold and very far from being a masterpiece" is an opinion published by a British amateur in the 1957 Rose Annual of N.R.S. England. Colour is light yellow to creamy yellow under tropical sun, but the shape of blooms and growth of plants are not discouraging.

Golden Melody —Mr. Harkness, the famous rose expert of England, is very candid in his opinions and I quote his remark about this rose "There is nothing golden or indeed musical about it; the flowers are light wheaten yellow, long and beautifully formed". I have not grown this rose.

Golden Revelry (Pernetiana)—The deep yellow blooms are thin and of medium size.

Grand Gala (H. Pert.)—At present there is a commercial exploitation of some fanciers' desire for bicolours so roses like "Magnificence", "Pigalle" and this variety are being passed as bicolours by some dealers. If technically, due to some difference in colours, they can be passed as bicolours I think Betty Uprichard, Edith Nellie Perkins, Faience, Flaming Sunset, Pavilion de Pregny, Talisman etc., are no less bicolours. A useful new rose with real beauty is certainly worth possessing but there is no use creating a fad. Grand Gala, not a bad grower in cooler places, is just red with light pink reverse. Grand Gala has nothing spectacular. Magnificence has a very large bloom and one can have it if he be keen about size without much grace; it is just pink with dull cream reverse in tropical climate and the shape is globular. Pigalle is far from velvety crimson and very far from deep velvety scar-

let, as described by some people, it is purple-pink to majenta-pink and even if you do not dislike the colour the reverse is straw colour shaded majenta but never yellow. I admit that some people may like a colour which others may consider ugly so it is for the fancier to make his choice.

- * * Grandmere Jenny** (H. Pert.)—Yellow, at times rich yellow in good weather, beautifully pencilled and splashed carmine pink. Some people like it more than “Peace” but I think they cannot be compared as each of them have outstanding individualities. It is higher and more branching than Peace. With enough of humous and drainage in the soil it can be induced to have good growth with a little extra doze of cow-dung manure and will produce superb blooms through light pruning. Prof. A. R. Shah, of Allahabad, an amateur rose expert grows it to above 3 ft. with enough of flowers.

GULABI ATTAR. (H.T.)—Rosy red flushed majenta-mauve. Pointed buds open to large and very full flowers which do not ball in our winter. Very free flowering healthy growth about 3 ft. high. Very sweet scent though not of Charles Mallerin type. Nothing spectacular but some fanciers like the shade of colour.

Hadle (H.T.)—Deep crimson, sweetly scented full flowers with good shape. Free flowering branching growth about 3 ft. high.

- * * Happiness** (H.T.)—Original name Rouge Meilland. Brilliant crimson shaded glowing red. Perfectly shaped large blooms on strong erect growth. Very impressive flower without fragrance. Height about 4 ft.

Hebe—This salmon pink rose got a gold medal in England. It proved too thin for our climate. Out and out a very cool weather rose which was short lived with me.

Hector Dean (H.T.)—Enjoys continued popularity in England where it produces large full flowers with sweet scent and salmon-orange flowers. My plants are still kept alive with care but are quite disappointing in flowers and growth.

* * **Heinrich Wendland** (H. Pert.)—Orange-red to Nastertium-red with yellow reverse. Large well shaped flowers are quite full and attractive in cool weather. It is quite possible to grow this rose with a little extra care and light pruning. Height $2\frac{1}{2}$ ft.

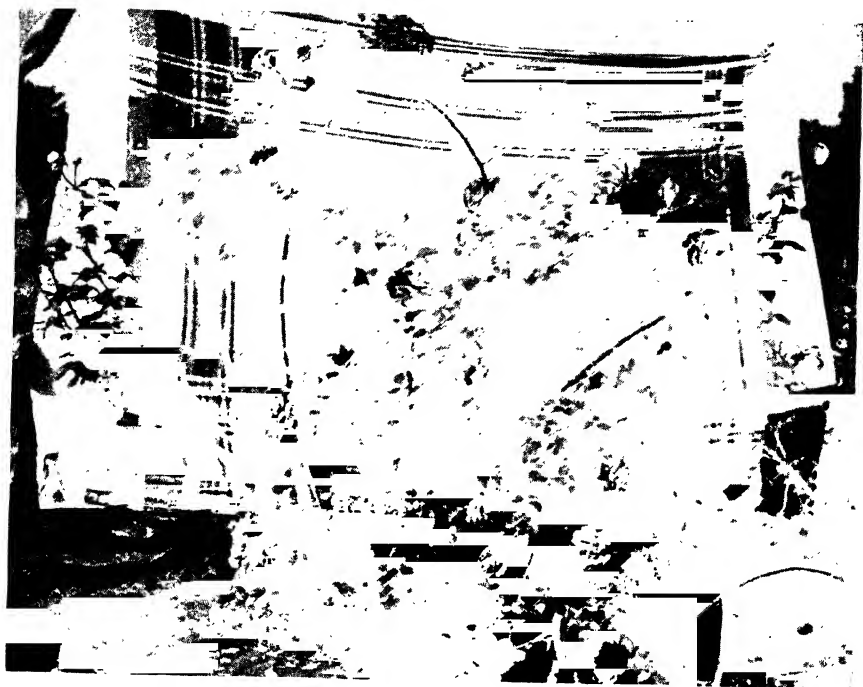
* * **High Noon** —Brilliant yellow flowers are produced on long stems. It can be grown about 8 ft. high. Not a shy bloomer. Can be usefully trained as a Pillar rose in the centre of beds.

* * **Huntsman** (H. Pert.)—Vermillion red with light yellow reverse. Flowers can be quite large with a little extra care. Not unhealthy growth about $2\frac{1}{2}$ ft. high. Rather similar to Forty-Niner.

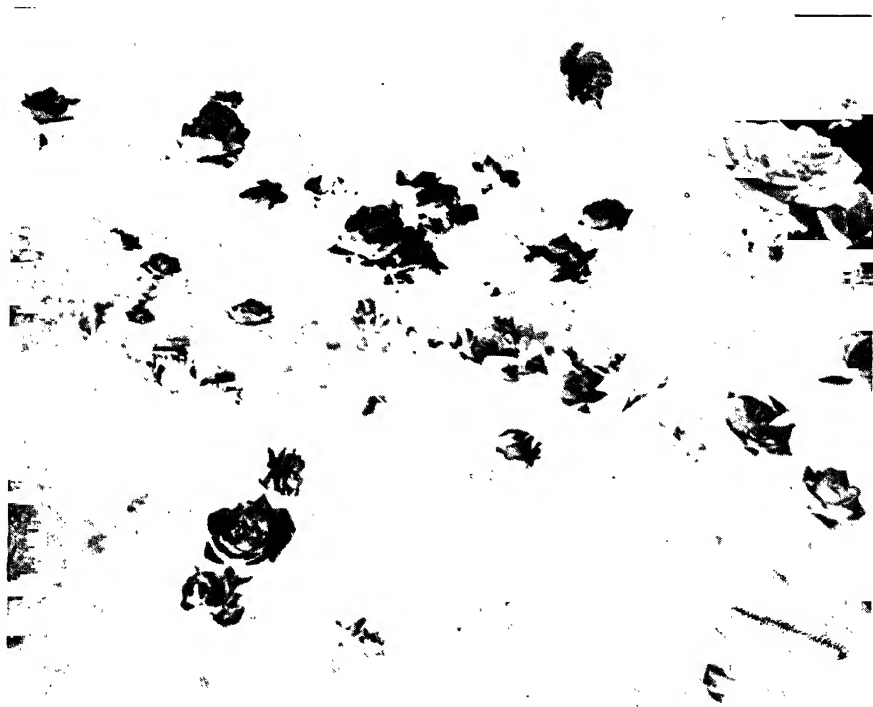
* * **Independence** (H.T.)—Real vermillion shaded scarlet but the reverse is blemished with smoky crimson. Very arresting colour which fades with objectionable bluing or purpling with age; older flowers should therefore be removed. Very freely produced on branching growth about $2\frac{1}{2}$ ft.

Jon Phillips (H. Pert.)—Pure yellow of a paler shade than either Julien Potin or Madam Curie and not of equally good shape though the flowers are large and quite full.

* * **James Rea** (H.T.)—Carmine-red, sweet scented large full and globular blooms on compact growth about $2\frac{1}{2}$ ft. high. Not a popular rose to-day.



MAD. I. PERIERE (Partly pegged down)



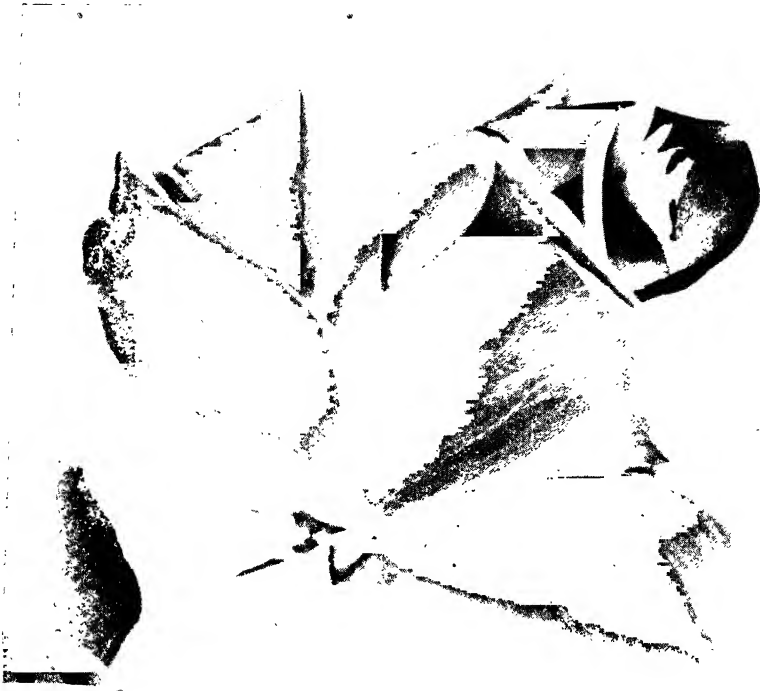
A bed of KARUNAMOY



GLORY OF ROME



WILLIAM ORR



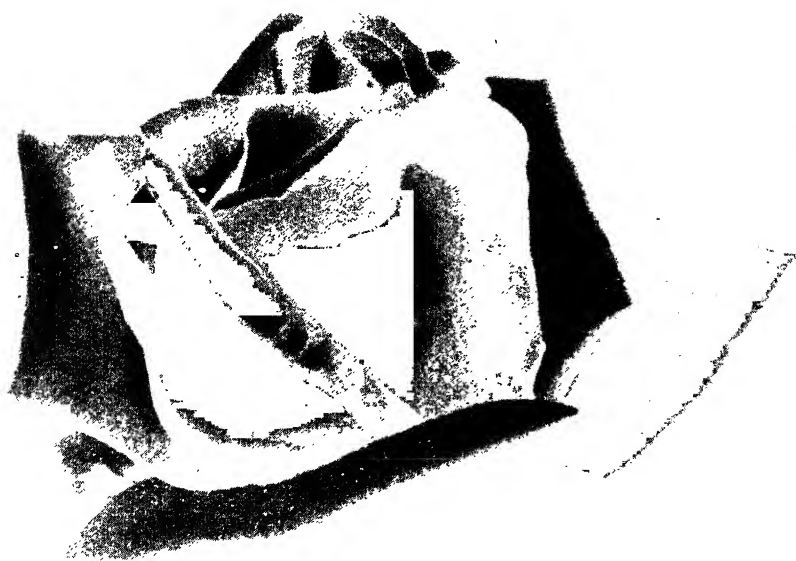
SHOW GIRL



SUZON LOTTHE



CONFIDENCE



BAPUJI



SHALKAMAI



DIAMOND JUBILEE



CHRISTOPHER STONE



FARNAND ARLES



LALKAMAL (Open bloom)



LALKAMAL (Bud)



EMILY



KARL HERBST

- J. G. Glassford (H.T.)**—It is more a H.P. The crimson-lake coloured blooms are quite big but they droop and are produced only for short period after pruning. Very sweetly scented. The new rose "Lalkamal" is equally big and sweet but has a much brighter velvety colour with erect flower carriage.
- John Russell (H.T.)**—This scentless crimson rose, now discarded, had a tall growth which was never bushy. Charles Mallerin is a much better rose of similar type.
- Joseph Pernet (H.T.)**—Although the shape and colour was good there is no room for it now. Even McGredy's Salmon is better in flowering (habit and brighter or rather deeper).
- Joyce (H.T.)**—There is little to be enthusiastic about this dark crimson rose introduced by Messrs Frank Cant & Co., Ltd., the famous British growers, who have themselves admired "Rajendra Prasad" which is a rose on the same line with more satisfactory performances.
- * **Julien Potin (Pernetiana)**—When at its best there is no yellow to supersede it in bloom. Growth has to be maintained with care and it amply repays. It is much less short lived than many other pure yellows. Should be lightly pruned.
- Juliet**—This rose created a sensation when first introduced by late Wm. Paul in 1910. It had curious foliage and the blooms were red and yellow bi-colours. When the "Queen Alexandra Rose" was introduced 8 years later by McGredys with clearer colour contrasts it was said that it "out Juliets Juliet". Both were Pernetianas but were passed as H.T. in England. They have both gone out of cultivation, even in their land of birth, but

there is nothing to repent in the face of much better bicolours recently introduced.

**** Josephine Bruce (H.T.)**—Deep velvety crimson, well formed fragrant blooms on healthy growth. The extent of its popularity in England will be appreciated from the fact that an entire bed of it has been planted in the Royal Palace in Buckingham. As there is some colour similarity I discuss it in comparison to the variety "Rajendra Prasad". Growth of Bruce is free branching and spreading with a height of about 2 ft. whereas Prasad will easily cross 3 ft. under normal care and can go up to 4 ft. with well branched habit so Prasad beats Bruce in growth. Prasad produces many more flowers in a season so in flowering Prasad beats Bruce. Colour of both being glistening Prasad at times has blackish shade but Bruce is still more velvety and Bruce is unaffected by frosty cold but colour of Prasad cannot stand as much cold so I allow more marks to Bruce in colour. In formation of bud and as a superb bud for buttonhole Prasad definitely beats Bruce. Josephine Bruce has a few more petals so in this respect it beats Rajendra Prasad. Bruce is a very good rose but if a few more petals do not mean too much Rajendra Prasad has better effect in the gardens under tropical climate.

**** KAMALA (H.T.)**—Deep orange with golden shades, healthy free branching growth over 3 ft. Its beautiful colour is paler unless the temperature is about 50 degrees F. when it is really attractive and the buds are most beautiful although the size of the blooms is not very large. Graceful flowers are freely produced.

- * * Karl Herbst (H.T.)—Dull crimson shaded scarlet-red. A very brilliant full flower without scent. Somebody in England reported that it grows to man height there. Under tropical climate it cannot have that growth but is not disappointing. If induced to grow up it is very pleasing. Growth about 3 ft.
- * * KARUNAMOY (H.T.)—Outside of petals coppery carmine, inside light pink, there is a yellow flush from base of petals. Very large and very full flowers, with no balling defect, are carried on long stems of liver colour. Very free flowering but not quite high centred. Growth about 4 ft.
- * * Konard Adeneur (H.T.)—Velvety deep crimson scarlet, quite full large flowers with very sweet scent, free flowering growth about 2½ ft. high. I consider it better than 'Earl Haig'.
- * * KALIMÁ. (H.T.)—Glistening velvety black colour like 'Nigrette' while the reverse, of the petals, is deep red. The wonderful colour may be affected by frosty nights. Large flowers are very freely produced; many stems produce several flowers on each but it should not be mistaken as a Floribunda, it is a pure H.T. During warm weather the blackness pales. Lacks fragrance. Free branching bushy growth about 3 ft.
- Lady Belper (H. Pert.)—Orange yellow with a coppery-orange shade on reverse of petals. This well shaped rose is considered excellent in England and such other cool places. In tropical plains a glimpse of its excellence can be had only when the temperature is at least 50 degrees F. Here it grows about 2 ft. and is not bushy.
- Lady Forteviot (Pernetiana.)—Only in some places in cooler climate like that of England, this is considered as effective with strong growth and

golden yellow with ruddy apricot colour. It was short lived and of poor growth with thin flowers of fleeting colour.

- ** La France (H.T.)**—The first of the H.T. and a memorable one for size, fullness and fragrance. Colour silvery pink with bright pink reverse. It may not be so high centred and slim as the moderners but when well grown it still beats them at least in tropical plains. Height about 3 ft.
- ** LALKAMAL (H.T.)**—Brilliant velvety crimson-scarlet which reminds the vivid glow of Ena Harkness. During coolest weather Ena is more graceful due to some slimness under lack of petalage. This rose is the largest of the sweet scented roses yet produced in its colour and never droops its head. Free flowering sturdy growth about 4 ft. high.
- ** LALKILA (H.T.)**—Shrub) Bright crimson shaded deep velvety scarlet, very full flowers open in all weather on a growth that can be trained as desired. Planted in deeply dug and well manured bed it will make a perfect hedge over 4 ft. high and will be perpetual blooming with light pruning and regular removal of faded blooms with a part of the shoots. Moderately pruned it will remain as a profuse blooming shrub as will be found in the illustration. Well fed and trained to go up it will be a good Pillar or semi-climbing rose about 7 ft. high. Some flowers are quite big but when in bunches on a stem they are naturally smaller. Its defect of scentlessness is often forgotten by its display. Pruned a little harder it can be grown as a vigorous bedding rose.
- ** Lady Hillingdon (T.)**—Deep apricot yellow; the buds are most appealing in cool weather and in display of blooms modern roses rarely beat it.

Should be well grown to induce strong shoots otherwise many weak stems come out with drooping flowers. Height 3 to 4 ft.

Lord Lonsdale (H. Pert.)—A fairly good yellow in its days. It has gone out of favour, under pressure of moderners, even in its place of birth—England. It was not a hardy grower in Tropics.

* * **Louis Baldwin** (H.T.)—It may be more correct to classify it as a 'T'. Most similar to Lady Hillingdon with added merit of stronger stems.

Love Song (H. Pert.)—Light orange-red, reverse of petals yellow; flowers are very full and attractive. It has not yet been fully tried in tropical plains; the growth is bad so it will not be worth while in tropical plains.

* * **Luis Brinas** (H. Pert.)—Coppery yellow shaded pink. A superb rose during cool weather. Fully repays the care it needs. Height about 2½ ft.

Madam Butterfly—These roses of the Ophelia group including Lady Sylvia, Golden Ophelia, Polly, Rose-landia, and Monique are very useful in England and such climate. They produce fairly good flowers only when the temperature is below 50 degrees F. in the tropics. Although they have no Pernet blood they are roses definitely for much cooler zones and are short lived in Tropical warmth.

* * **Madam Curie** (H.T.)—Renamed 'Quebec' in America and England has followed suit! I consider it to be the finest pure yellow yet produced for the Tropics. The faint Pernet blood is so much eliminated; the firm of Pernet-Dutcher declared that it is the finest yellow they have yet produced. The full flowers have high-centred fine shape, are carried

erect and open to very large size. Vigorous prolific growth to 4 ft. No award from N.R.S.

- * * **Madam Henry Guillot** (H. Pert.)—Bright orange-red, quite large flowers of telling colour and the plants are very leafy. With light pruning and a little extra care this is a very attractive rose. Height about $2\frac{1}{2}$ ft.
- * * **Madam Isaac Periers** (B.)—Carmine purple to deep rosy red, quite large and full flowers open with an expanded shape; very sweetly scented. It should be well fed to grow as vigorous as it can. Either lightly pruned or pegged down late in the pruning season it will produce a great burst of blooms with some repeat flowers. A very hardy grower. This very old type of roses are being remembered again, for their merits, and some amateurs are planting them even in England.
- * * **Madam Joseph Perraud** (H. Pert.)—Coppery yellow to orange yellow. Nicely shaped elongated flower of large size. Produces really good flowers when the temperature is about 50 degrees F. Its growth should be induced with good cultivation and addition of enough humous to the soil. Light pruning is needed. Height about $2\frac{1}{2}$ ft.
- * * **Madam Jules Bouch** (H.T.)—White with a slight flush. During cool weather very perfectly shaped flowers of good size and grace are very freely produced. Vigorous growth about 3 ft.
- Madam Kriloff** (H. Pert.)—Reported very vigorous and tall in Europe but leggy and unhappy in tropical heat; shape of flower not appealing in spite of pink veined orange-yellow colour.
- * * **Madam L. Dieudonne** (H. Pert.)—Sharply contrasting bright red with deep yellow on the reverse of

petals. With light pruning and a little extra care this is quite free flowering and charming.

- * * Madam Louis Laperriere** (H.T.)—Dark crimson, very sweetly scented well shaped large flowers are freely produced on well branched compact growth about 2½ ft. high. Fuller flowers than Etoile de Holland.

Madam Raymond Gujard (H. Pert.)—Also known as Olympiad. Coppery red shaded yellow. Not worth while in the Tropics.

Madam Yeves Latieule (H. Pert.)—Also known as Nankin. Pure yellow with quite large size and enough of petals but the growth is a constant headache. Better to avoid it even in cooler parts of the tropics without frosts.

- * * Madri Gras** (H.T.)—Bright velvety crimson, high centred well formed flowers with enough of petals unfading colour and very sweet scent. A recent rose which will be a good grower and worth having with very sweet scent.

Magnificence (H. Pert.)—Vide description in Grand Gala.

- * * MAJENTA QUEEN** (H.T.)—Majenta flushed mauve. Very full large flowers with very sweet scent. As satisfactory and hardy a grower as the old variety Mrs. B. R. Cant. The distinct shade of colour and the very free flowering habit will make it a useful garden rose throughout tropical plains.

Marcel Gret (Pernetiana)—In spite of its most intense yellow its bad growth and loosely formed flowers cause more worry than pleasure in growing this in tropical heat.

- * * Margaret** (H.T.)—Bright pink with silvery pink reverse. Elongated buds freely open to very full and very large flowers. This will probably grow in every situation. A very good rose for garden decoration or exhibition. Growth up to 4 ft.

- Margaret Anne Baxter (H.T.)**—When the weather is very cool it has a tint in the centre otherwise it is pure white. Ideal flower with almost too much fullness. Chiefly an exhibitor's rose as it refuses to grow up.
- * * Margot Anstiss (H.T.)**—Satin pink, well formed very large blooms of globular shape. Has little scent. Height about 3 ft.
- * * Mary Wheatcroft (H. Pert.)**—Glowing coppery flame. During cool weather it produces better colour than Mrs. Sam McGredy and has better growth about 3 ft. Not a rose for those who are keen about full compact blooms. A cool weather rose with very attractive colour.
- * * McGredy's Ivory (H.T.)**—Also known as Portadown Ivory. In spite of lack of petalage for tropical warmth this white rose produces very long buds of the finest quality when the weather is cool. Height 3 ft.
- McGredy's Orange** —Not satisfactory for tropical climate.
- * * McGredy's Salmon (H.T.)**—Salmon-pink. Though not a massive bloom it is well shaped and quite a good rose with free flowering well branched plant about 2½ ft. high.
- * * McGredy's Sunset (H.T.)**—Clear yellow with ruddy tints, healthy growth of free branching moderate height. A good garden rose of decorative type but as there are other better yellows its sport Flaming Sunset, with more colour contrast, has become more popular. Has some Pernet blood. Height about 2½ ft.
- * * McGredy's Triumph (H.T.)**—Deep orange shaded pink and yellow. Flowers very large but not always erect. Spreading growth about 2½ ft.
- McGredy's Wonder** —Not at all a wonder in the Tropics.
- McGredy's Yellow (Perteniana)**—Considered as one of the best yellows in the cool zones. Coolest temperature in tropical plains may produce some good blooms but considering



One stem of
MASOU FRAIDE



MRS. INGE POULSEN



RAJENDRA PRASAD

all round performance it is not worth while.

Message—Although inbred to 'Peace' it has the appearance of a H.T. but in constitution it is a poor grower without the thick shoots of Peace. I do not think it carries any message for the Tropical warmth.

Mev. G. A. van Rossem (Pernetiana)—The pencilled golden bronze on deep apricot is very attractive but it refuses to grow in the tropical sun. The climbing form gives ample scope to enjoy the highly coloured blooms.

* * **Michele Meilland** (H.T.)—Variable colour according to weather. At times pink shaded lilac while at other times impressively shaded coral and yellow. Quite a good rose with nice shape and very productive habit. It is a bushy grower often higher than 3 ft. Should be in every collection.

* * **Mirandy** (H.T.)—Dark crimson with a purplish tint. Very sweetly scented well shaped large blooms which at times droop. I think its progeny 'Chrysler Imperial' is a more perfect rose.

* * **Misty Morn** (H.T.)—White with a pale lemon shade. Compact and massive blooms are very freely produced on healthy plants about 3 ft. high. Good for exhibition as also garden decoration. Blooms more globular than high centred.

Modern Times (H.T.)—Sent out as a red rose with pink stripes but the stripes are too rare to keep patience over this rose with no outstanding colour.

* * **Mojave** (H. Pert.)—Its upright healthy growth causes no worry. Its incomparable orange will keep it going in every collection until a fuller flower can oust it.

Monique (H.T.)—This Ophelia blooded rose did not prove dependable under tropical warmth.

* * **Montezuma** (H.T.)—Another rose with the hyperbolic Ameri-

can classification "Grandiflora": The large blooms are freely produced on vigorous growth not so tall as Queen Elizabeth. Colour is quite attractive orange-salmon. A worth having rose.

Monte Carlo (H. Pert.)—It can be grown in tropical plains if you take the extra care in nursing it and pruning lightly. Its pure deep yellow is at times, in humid weather, quite spectacularly clad with light red border at the edges of petals. Height about 2 ft.

* * Mrs. Charles Lamplough (H.T.)—White with lemon shade nearer the base of petals in cool weather. Not quite free from balling in adverse weather but still ahead of any other white and still considered 'Best Bloom in Show' in some exhibitions. Growth vigorous but not so free branching. Height up to 3½ ft.

* * Mrs. John Laing (H.T.)—Deep pink. Never an unwieldy tall growth. It can produce worth seeing blooms with very sweet scent.

Mrs. Sam McGredy (H. Pert.)—Very attractively coloured rose of coppery orange-salmon only when the weather is cool for sufficient period with a temperature never above 50 degrees F. as the minimum of each night. Height 2½ ft.

* * Mrs. Franklin Roosevelt (H.T.)—The Pernet blood is almost eliminated. Deepest yellow sport of Talisman. Quite free flowering. Grows to bushy plant about 3 ft. and flowers freely.

* * Mrs. Henry Wennett (H.T.)—Very deep red to rich crimson. high centred perfect shape with enough of petals and large size. Freely produced on bushy growth over 3 ft. high. Very sweet rose.

* * NETAJI SUBHAS (H.T.)—As a context of the raising of this rose I refer my readers to page 214 of the 1924 Rose Annual of N.R.S. wherein Late Mr. Courtney Page had written that he

had grown and found the rose "Dr. A. I. Petit" to be a very good rose which would have received high honours if it was placed for assessment but the raiser did not do so because he was in the Selection Committee for New Roses. To-day the position is different in the Trial Ground Selection Committee of the N.R.S. which includes five commercial people who are themselves raisers and/or distributors of roses to be assessed.

"Dr. A. I. Petit" lacked fragrance in our climate although the old type blooms were very impressive. I succeeded in raising a very sweet Petit with intensified colour of velvety crimson unlike Petit and it was honoured with the great name. This rose is a dependable grower with free flowering habit. Height about 3 ft.

**** New Yorker (H.T.)**—Bright crimson-scarlet, very well formed quite large and full flowers are freely produced on erect stems. Almost scentless otherwise a first class rose growing about 3½ ft.

Night (H.T.)—Very dark crimson and fragrant but rather short lived due to some constitutional debility.

**** Nigrette (H.T.)**—Nearest approach yet to black on both sides of petals. Neither large nor scented otherwise satisfactory with free flowering compact growth.

**** Nur Mahal (H.M.)**—Bright red semi-double flowers in huge sprays. Perpetual bloomer on arching shoots. Fragrant and highly decorative if planted as a hedge or in a bed left to itself. Height about 4 ft.

Olwald Sieper (H. Pert.)—A white rose with good form but never a hardy grower.

**** Omer Khayyam** —A Damask rose which can also be said to be a Bussorah rose with memorable fra-

grance. Light pink flowers with centre petals imbricated in a peculiar fashion. Allowed to grow very vigorously and pruned lightly very late in the season it produces enough of blooms in Polyantha like 'huge bunches. Foliage is distinctly different.

* * Opera (H. Pert.)—Orange-carmine. Good colour in large flowers which open out too soon. Grows with health to about 2½ ft.

* * Paul Neyron (H.P.)—Pink. The largest rose in cultivation but a little coarse in shape.

Peace (H. Pert.)—Also known as Mad. A. Meilland, Gloria Dei, and Gioia. Light yellow, at times deep yellow, with pink flush at the edges of petals. Slightly high centred globular blooms of first rate merit. A difficult grower in the tropical plains as this is out and out a winter loving rose. Its wonderful blooms will tempt every fancier to grow it and some of them will get disgusted. Although it will never be so successful as in cool zones they can be somehow managed or the care free very vigorous climbing form may be preferred. To have the best possible performance of the dwarf Peace, in the comparatively cooler parts of the tropical plains, it should be planted in deeply dug and well manured bed. Nursed with care and pruned only lightly or if only the exhausted and weak shoots are thinned out it will produce some wonderful blooms in the cool months. The climber will, however, produce many more blooms and often of superior quality. In warmer places with retentative soil it will be a cruelty to try the dwarf instead of the climber which can be kept as a large shrub in such places.

* * **Picture** (H.T.)—Bright pink, ideal formation, moderate grower. A free blooming old production of McGredys.

* * **Perfecta** (H. Pert.)—This should not be confused with a Polyantha named as such in 1920. It is a pity that in the enthusiasm about naming people do not look back.

The pernet blood is eliminated, through its parents, to sufficient extent to help it grow even in tropical plains. It will amply repay a little extra care in our warm climate. In very cool zones the description of colour is 'cream with rosy pink shade'. One over enthusiastic local catalogue describes it as 'salmon pink with golden yellow ground'. Under tropical sun the colour is just creamy white with light pink at the edges of petals; the pink encroaches upon white as the bloom ages. This outstanding rose flowers pleasingly, they are very full and high centered but scentless. Well branched erect growth about 3 ft.

Phyllis Gold (Pernetiana.)—In spite of its indifferent health it was a good yellow but it has now been ousted by better growers like Madam Curie. Ethel Sandy, even with a paler shade, compensates with very much larger graceful blooms on better growth.

Pigalle—Vide description with 'Grand Gala'.

* * **Poinsettia** (H.T.)—Described by some as bright scarlet. The variety 'Concerto' is rightly described as bright scarlet so it is unfair to lend description of that colour to this rose. When the minimum temperature is below 50 degrees F. the vividness of the crimson-scarlet of this rose can be found. Scentless. Growth about 2½ ft.

Portadown—A crimson rose from McGredys which was not

quite appealing in this climate nor a good grower ; it has also been ousted from the land of its birth.

Portadown Fragrance (H.T.)—Another McGredy rose which has been ousted from its land of birth. Being a very full rose and very fragrant it is occasionally sought in Indian plains inspite of its not quite vigorous growth.

* * **Prelude** (H.T.)—It is amusing to hear somebody mentioning it, hopefully, as a blue rose which is now-here yet in commerce. Its colour is pale lavender with a faint tinge of mauve. Free flowering bushy growth about 3 ft. high.

Premier Ball (Pernetiana.)—I would not like courting a headache over the poor low growth of this rose more so when a much better grower with somewhat similar colour is available in 'Perfecta'.

* * **President Herbert Hoover** (H.T.)—Pale yellow shaded pink. Other than bleaching the deep crimson of the seed parent and imparting a little of its yellow the Pollen parent could not impart its Pernet blood into this rose which grows happily in the Tropics. Flowers are quite large and on strong stems. This rose should be well fed and not lightly pruned otherwise it will grow leggy and tall.

* **President Poincare** (H.T.)—Majenta pink shaded yellow, reverse of petals rose pink shaded cream, edges of petals tinted purple-pink. Very sweet scented large and full flowers on good growth over 3 ft.

Prima Ballerina—This deep pink fragrant new rose has not yet been fully tried. Seems to be good rose. While some distributors have styled it as "Big" or "Magnificent" the National Rose Society of England describes it as "Medium sized, borne several together."

- * * **Queen Elizabeth** (H.T.)—Beautiful rose-pink with an uncommon luminous shade. Flowers of medium-large size produced very freely on tall leafy plants about 5 ft. high. Many shoots produce only one flower on each but basal shoots and strong laterals produce as many as their strength permits. Blessed with hyperbolic classification 'Grandiflora' from America.
- Radar**—Deep scarlet-red progeny of 'Independence' with fragrance but a bad grower. Never so good a colour as Independence.
- * * **Radiance** (H.T.)—Rose pink with light pink reverse, large, full and fragrant flowers with globular shape. Height 3 to 4 ft.
- * * **RADHARANI** (H.T.)—Bright carmine. Perfectly shaped graceful flower. At times huge flowers can be obtained without any coarseness in the bloom. Free flowering healthy growth to about 4 ft.
- Raffles Bruce** (H. Pert.)—Apricot-orange flushed gold. Only when the temperature is below 50 degrees F. one can guess why it got a gold medal in England. Weak growth. At least for the Tropics I have the satisfaction of completely superseding it by my production mentioned below.
- * * **RAJA RAMMOHAN ROY** (H.T.)—Apricot-orange shaded golden copper on the reverse of petals. Long and perfect buds are carried on stalks which are unusually long. Flowers open to very large size with delicious fragrance but, although fuller than Raffles Bruce, are not very full for warmer situations. This rose was sent to Dr. K. S. Aiyer, F.R.C.S. (London) ex-Jt. Hony. Secretary, Madras Horti. Society, for trial in Madras. He wrote "Do not introduce it as H.T. but as a 'Park Rose' as

they call in Europe. Lightly pruned it produces long canes and plenty of flowers. It is the best yet in its colour." Its stately growth does not match with low bedding roses. Its growth is neither leggy nor one sided but has a bushy growth which can rise to 5 ft. with plenty of flowers.

**** RAJENDRA PRASAD (H.T.)**—Vide description of Josephine Bruce.

**** RAMKRISHNA DEVA (H.T.)**—Buds scarlet to light scarlet ; open flowers contain scarlet-orange, pink and distinct yellow. Sweetly scented flowers are freely produced on very healthy plants about 4 ft. high. This decorative rose is not of compact formation nor has plenty of petals ; colouring and freedom are its attractions. It lacks frost hardiness ; even the open blooms remain partly closed in very cool temperature until the sun is up.

**** RANI JHANSI (H.T.)**—Messrs Frank Cant & Co., Ltd., the reputed rose growers of England wrote 'it is like Show Girl'. Colours of the two roses are somewhat similar but personally I feel the slim Show Girl is more graceful, when the weather is sufficiently cool, while the Rani with many more petals has a hefty look without coarseness. Shape, fragrance, size, fullness, care free growth and freedom of blooming are different qualities of a rose. According to individual likings fanciers are keen about one or the other qualities. I am happy to say that very near full marks will be awarded by fanciers in the tropical plains for every item of the qualities particularly its hugeness.

**** Red Radiance (H.T.)**—Light red sport from Radiance.

**** Rex Anderson (H.T.)**—In cold zones it is described as lemon



NEW YORKER



STRIPED R. M. HENRIETTE



DR. F. DEBAI



MICHELE MELLAND



SUDHAMOY



VILLE DE GAND

yellow. Under tropical sun it is pure white with faint yellow shade at base of petals. Very well shaped large flowers on healthy growth about 3 ft. high.

- * * Roger Lambelin (H.T.)—Crimson margined and streaked white. There is no other rose like it. It should be allowed to grow vigorously as usual with H.P.'s. Matured plants moderately pruned late in the season produce many spectacular flowers. Grows 4 to 5 ft.

Rose Gaujard —There has been some publicity for this new seedling from 'Peace'. The official N.R.S. description about its colour is "white flushed pale pink, shaded and veined strongly to deep Rose Bengal" (a deep pink colour). I believe that the colour will be paler under tropical sun so I did not feel enthused over this winter loving rose and cannot therefore correctly assess it.

- * * Rome Glory (H.T.)—Another name of Glory of Rome.

- * * Rubaiyat (H.T.)—Rosy-red; very fragrant large and full flowers freely produced on a dependable growth about 4 ft.

Sam McGredy (H. Pert.)—The departed rose researchist of great fame named it after himself. Colour creamy buff. It did not prove to be a successful grower in tropical plains and the flowers opened out too soon.

- * * S. PERCY-LANCASTER (H.T.)—Named as desired by an eminent horticulturist in India. Deep crimson, large and full flowers with mild fragrance. Vigorous and prolific dependable growth in the tropics.

- * * Show Girl (H.T.)—Deep rose-pink, beautiful shape with very large flowers. Famous in all the cool zones and worth while in the tropics too. Prolific growth about 3 ft.

Shot Silk (Pernetiana)—Beautiful salmon-orange pink in very

fragrant flower but the plant refused to be happy in tropical plains. The climbing sport easily survives tropical heat and grows vigorously.

*** * SHRI BABU** (H.T.)—The flower loving Chief Minister of Bihar graciously approved that this rose is good enough to be honoured with the name. Messrs Cants, famous British rosarians, have also liked this rose very much. Colour pearly pink flushed amber-yellow while the centre of the flower is orange-amber. High centred, very large and quite full flowers have a delicious fragrance. Free flowering healthy growth can attain about 4 ft. height.

Signora (H. Pert.)—Orange yellow shaded pink. An expert amateur, Prof. A. R. Shah of C. M. P. Degree College, Allahabad University, says that in northern India plants of this rose do not live for more than two or three years and, in his opinion, it will be ousted by Mojave.

Sir Hanry Seagrave (H.T.)—Pale lemon. If you like the colour it is a nicely shaped good rose and probably the best in its colour. It should be carefully grown to strong health otherwise flowers droop.

Sir Winston Churchill—A production of Messrs Dicksons who do not generally give out the parentages of their productions. Even then this rose seems to have Pernet blood, if I am not mistaken. I am growing this British gold medal winner for the three years but the growth is disappointing. This pink rose has large and full flowers with some fragrance but without best shape. Although considered to be excellent in England it is far from outstanding in this climate.

Snow White (H.T.)—A fragrant white rose with very good

shape. A rose for the cool weather only. Growth, although not unhealthy, is poor so it should be taken good care of and lightly pruned.

Soraya (H. Pert.)—Brilliant orange-red. The large and full flowers are attractive but it should be lightly pruned and taken care of to keep up its growth. Outstanding colour.

Souv. de Cladius Pernet (Pernetiana)—The great researchist late Joseph Pernet named this and Souv. de Georges Pernet (a good, yellow shaded, salmon-pink) after his two sons who lost their lives in the great war. Although very good roses in cool zones they are quite unsuited to tropical heat.

**** Speck's Yellow** (H. Pert.)—Probably the most intense pure yellow that can be grown under tropical warmth. Very free flowering beautiful buds do not possess enough of petals but are very graceful and decorative. Growth about 2½ ft.

STHALKAMAL (H.T.)—Well fed plants produce so big blooms during season that people, fond of size, are enamoured with this rose. Personally I feel it has little grace and is carried too boldly on stiff stems. Height about 3 ft.

**** SREE MA.** (H.T.)—Brilliant velvety crimson-scarlet with very sweet scent. Large, full, perfectly shaped and particularly beautiful in the half open stage. Very freely produced on vigorous bushy plants up to 4 ft. high.

**** SUDHAMAY.** (H.T.)—I quote remarks of Sri B. R. Arora Advocate, New Delhi, after he had grown it for two years. "Sudhamay is thriving in my garden. It is an upright grower. Buds are long and pointed, they do not open quickly, the bloom is lasting. It has plenty of petalage and the colours deep

satin pink and yellow at base. I consider it is a very satisfactory rose." Height about 4 ft.

Sultane (Pernetiana)—Bicolour of cherry red with golden yellow on outside of petals. Should be carefully grown and lightly pruned to maintain its unhappy growth under tropical sun. It has been written by a British amateur in 1957 Rose Annual of the N.R.S.:—"I am wondering how much room there will be for Sultane in competition with Tzigane."

*** * Sutter's Gold (H. Pert.)**—Most attractive buds of deep gold stained pink, very fragrant flowers with beautiful carriage on very long stalks. Best during cool weather as it does not have plenty of petals. Growth about 3 ft. Requires a little care and liberal application of humous and manure.

*** * Suzon Lotthe (H.T.)**—Although produced out of two Hybrid Pernets 'Peace' and 'Signora' it is a good example of throw back to H.T. blood. Beautiful pearly pink with ideal formation of blooms which are fragrant and are carried on erect stems. Height about 3 ft. Good growth.

*** * SWAMI VIVEKANANDA (H.T.)**—Pure white with slight pink flush in bud. Pointed bud of good shape. Fuller than McGredy's Ivory but not so long in bud. Free flowering good growth of moderate height.

Swansdown—Creamy white. Proved to be disappointing in our warm climate. Has gone out of catalogues in England—its land of introduction.

*** * * Tahiti (H. Pert.)**—Golden yellow shaded pink, as the bloom ages the pink deepens and encroaches on the yellow. Robust stems produce large full flowers of loose formation. Well

grown plants produce attractive flowers.
Growth over 3 ft.

**** Talisman** (H. Pert.)—Nice combination of pink and gold in fragrant flowers, freely produced on healthy plants under normal care. Growth about $3\frac{1}{2}$ ft.

**** Tallyho** (H.T.)—Deep carmine outside, inside pink. A good rose with free flowering habit and healthy growth about 3 ft.

Texan (H.T.)—Sent out under the hyperbolic classification 'Grandiflora' from America. I hope my readers will be amused by the glare of descriptions I quote below from the catalogue of Messrs Wheatcroft of England who have quoted from an American catalogue:—"A new rose was born in California. 'This is a Floribunda?' people gasped. 'It is a whopper! Big as a Hybrid Tea...big as a climber...BIG AS A PALM TREE.' The tale grew taller with each telling. So did the Rose. 'Shucks' we grinned (even us Californians know when to say uncle). 'There is only one name for this rose—TEXAN.'" Red as a prairie fire, tall as a ten-gallon hat, softly scented as a Southern belle—it is California's gift to the great state of Texas and the world—the TEXAN. A great grandiflora presented in this country with the greatest pride as a Wheatcroft introduction."

I do not know whether such aggressive descriptions actually boost sales or have a reactionary effect in spite of some merits. I find this glowing red rose is very free flowering with vigorous growth and without appreciable fragrance.

Texas Centennial (H.T.)—A sport from President Hoover with more red in the fragrant flowers which are

identical in other respects. Growth less leggy than President Hoover.

Thais (H.T.)—Rich yellow veined and shaded ruddy pink. Nicely shaped flowers are produced freely on long erect stems. During the cooler months it is a nicely coloured rose which, in the opinion of the amateur expert Prof. A. R. Shah of Allahabad, beats 'Mahina'.

The Doctor (H.T.)—A very sweetly scented silvery rose-pink without enough of its huge petals. It is very famous in the cold zones but rarely grows higher than 1½ ft. under tropical warmth. It is a rose for damp and cool zones. Bereft of stagnant moisture I have seen the poor growth produce larger blooms during the rains than in our winter. It is not unhealthy but remains too dwarf.

Tonga (H.T.)—The Pernet blood is very considerably eliminated. Very large beautiful flowers of deep golden yellow with ruddy tints. Not yet fully tried in our climate but seems to be a very promising rose.

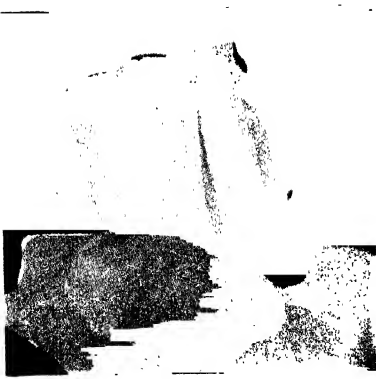
Tzigane (H. Pert.)—Decidedly the best bloom among all the existing bicolours of red and yellow. With a little extra care the growth is sturdy with robust shoots some of which have crossed 3 ft. in height in my garden. Very free bloomer.

Ulster Monarch (H. Pert.)—Very popular in England. I would advise fanciers in the tropical plains to avoid this rose which has better flowers with colour similar to Sam McGredy but a still worse grower. If any fancier would insist speculating with it he should enforce growth with feeding and light pruning.

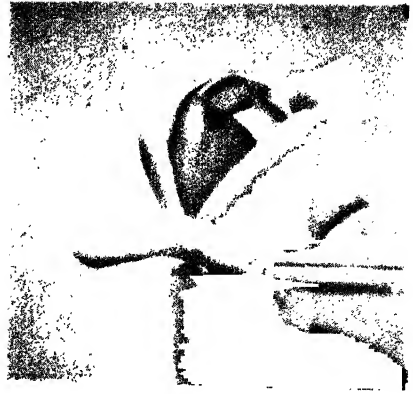
Velsheda (H.T.)—Clear rose-pink of a soft tone. A large flowering dependable rose with some fragrance. Very free flowering growth about 3 ft. high.

- Verschuren's Pink** (H.T.)—Bright salmon-pink with good shape and fragrance. It requires extra care to have its best blooms during the coolest period in the Tropics. Growth about 2 ft.
- Victor Teschendorff** (H. T.)—Rather stiff looking and not very free flowering white rose which has lost popularity a decade ago.
- * * Ville de Grand** (H.T.)—The faint Pernet blood is as much subdued as in Madam Curie. It is a good grower of about 3 ft. height and well branched. Well grown plants not only produce very impressive blooms often of exhibition standard but also impressive colour in brick red shaded orange-scarlet.
- * * Violiniata Costa** (H. Pert.)—Although it is more Pernet than H.T. it is a dependable grower with compact habit and produce many flowers with glossy foliage. Its flame-pink shaded rosy-orange colour is very outstanding. It does not grow much higher than 2 ft. but has a spreading and free branching habit which makes it quite worthwhile.
- * * Virgo** (H. T.)—The whitest rose; though not very large it has very graceful shape. The constellation 'Virgo' is known in Sanskrit as 'Kanya' meaning a maiden. This variety is aptly named as it has all the grace and purity of a slim maiden. Growth about 3 ft.
- Vive La France** (H. Pert.)—Can be successfully grown in tropical warmth if a little extra care is taken of this rather vigorous growing rose with very full flowers in red and yellow bicolour.
- W. E. Chaplin** (H.T.)—The days of this scentless brilliant crimson dwarfish growing rose are completely over.
- Wellworth** (H.T.)—Fully worth as named. Colour golden peach pink, large full fragrant flowers of

- perfect exhibition shape are carried erect on healthy vigorous growth to about 3½ ft. A free flowering rose of good qualities.
- Wilhelm Breeder** (H. Pernet.)—I do not think there will be any room for this indifferent grower on the face of Flaming Sunset and Wellworth.
- William Hervey** (H.T.)—Deep scarlet crimson popular English rose. Healthy grower and the flowers are fairly good during the coolest months of the tropical plains. As regards fragrance and general performance you will find "Rajendra Prasad" more satisfactory. Height about 3½ ft.
- William Moore** (H.T.)—One of the finest shaped deep pink roses and is distinctly perfumed. Its free flowering growth of about 2½ ft. height could have been better. Light pruning and good feeding should be applied to enjoy its superb blooms.
- William Orr** (H.T.)—Glowing velvety crimson, well shaped fragrant blooms are quite appealing during our coolest months. Height about 3 ft.
- ZAKIR HUSAIN** (H. Pert.)—The rose connoisseur Governor of Bihar has graciously selected this rose to be good enough to have the honour of being named after him. Colour carmine-rose to rose-pink illuminated with light yellow which is deeper at the base of petals. It is not just another pink rose. No normal shoot of this rose turns barren, strong shoots produce compact exhibition blooms of very high quality and they never droop. It has inherited similar shape and size of its parent 'Peace' with fuller blooms which are freely produced on much healthier growth over 3 ft. high. It does not have enough of fragrance appreciable to our Indian nose.



MARY WHEATCROFT



WELWORTH



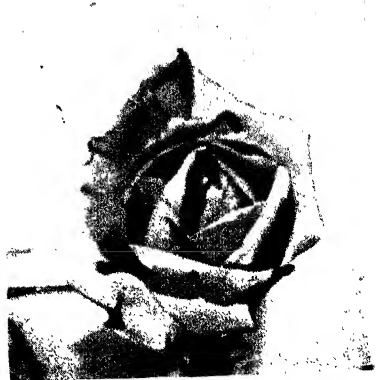
KALIMA



MADAME CURIE



CLG. PFAFF



MAJENTA QUEEN

BUNCH FLOWERING ROSES

This list includes Dwarf Polyantha (D.P.), Hybrid Polyanthas (Floribunda)—(Flori.), and Floribunda—H.T. Type (Flori-H.T.) as classified by N.R.S.

Light pruning or thinning out of dead, weak and exhausted shoots are the best treatment for them. If wanted to be kept down to desired heights they can be pruned accordingly but they resent hard pruning. It is better to plant them 2 ft. apart. Taller growers may be about 3 ft. apart. For mass effect or edging they should be closer.

*** * Aennchen Muller (D.P.)**—Bright rosy pink, large bunches, height 2 ft.

AGNI VEENA (Flori-H.T.)—Flame coloured buds open out to yellow with ruddy tints in the guard petals. Colours change harmoniously to flame pink at the borders and creamy yellow in the middle, fading petals are deep salmon pink towards the edges which deepen to almost red, while the rest portion of the petals fade to nearly white. Medium sized H.T. like blooms are produced in profusion ; some basal shoots have more than two dozens buds. Height nearly 3 ft.

*** * Allgold (Flori.)**—Almost unfading deep pure yellow with sufficient fullness. This new rose may prove to be the best yet produced in its colour. Free flowering bushy growth about 2 ft. high.

Atom Bomb (Flori.)—Orange-scarlet to scarlet-red. Sent out by Wheatcrofts as having "great trusses" but during two years trial I never had even a large truss.

Baby Faraux (D.P.)—It is more correctly a miniature rose and I admit I have a prejudice against them as they are more curiosities than objects of beauty in our warm climate because unless you can grow them from cuttings (i.e. on

their own roots) they grow taller and the entire object of a miniature is lost. Too dwarf growing as the miniatures are, cuttings are difficult. I had this rose twice from England on a wild understock and even then they were about 1 ft. high and did not freely branch in our dry heat. They were short lived too

*** * Border King** (Flori.)—Very brilliant scarlet red, huge trusses are very freely produced on healthy and leafy plants about 3 ft. high.

Border Queen (Flori.)—Salmon pink with a touch of orange in cool weather. Growth about 2 ft. Requires a little coddling.

*** * Chattrillon Rose** (D.P.)—Bright pink, huge trusses, very freely growing and prolific healthy plants about 2 ft. high.

*** * Circus** (Flori.)—I have to discuss this rose and Faust (also known as Dr. Faust) together. The N.R.S. has classified Circus as Floribunda while Faust has been classified as Floribunda—H.T. Type. I do not know the object behind this differentiation. According to N.R.S. size of flower has been stated to be $2\frac{1}{2}$ " in each variety. Circus has a fuller flower with more formal shape so if Circus cannot be Flori.—H.T. Type how could Faust be? It will be proper to classify each of them to be Floribunda without lending H.T. brand to any and confusing them. These two roses have some similarity in colouring and some fanciers, in India, have considered one to be better than the other. The yellow in each of the roses is more or less gradually clad with pink or ruddy tints and splashes. Circus is a fuller flower while Faust has more intense yellow at the start. Faust is a stronger grower and produces larger num-

ber of blooms in a season. I consider each of them to be good and do not consider any one to be inferior to the other unless fullness be the touchstone of merit. Circus grows about $2\frac{1}{2}$ ft. while Faust about 3 ft.

* * Cocorico (Flori.)—Brilliant scarlet, fairly large semi-double flowers. Under normal care it grows to about 3 ft. and basal shoots appear with huge trusses some of which are no less than 2 ft. wide.

* * Concerto (Flori.)—Vivid scarlet, brighter than the above, smaller blooms with a few more petals, more spreading and less high growth. Very worthwhile variety.

* * Cramoise Superior (H.B.)—Deep crimson with white centre, huge trusses on very hardy vigorous and bushy growth about 3 ft. high. Also known as Crimson China.

Danish Gold (Flori.)—Pure yellow semi-double flowers. This was not very vigorous and perished with me in the 1958 summer. With Allgold I do not feel like wanting this.

DEOGHAR BABY (D.P.)—Yellow with pink tints over the butterfly like flowers abundantly produced in trusses over spreading bushy growth about $1\frac{1}{2}$ to 2 ft. high. Messrs Cants, the famous British rosarians, wrote that it is very similar to Baby Betty a popular variety with them.

* * Dusky Maiden (Flori.)—Sent out from England as 'the darkest and sweetest scented red in its class'. There is no trace of the sweet scent under our sun but it is very dark velvety crimson and the very large trusses, with fairly large semi-double flowers, are quite impressive. Growth about $2\frac{1}{2}$ ft.

Echo (D.P.)—Pink to white in the same large truss. Nearly single flowers are very freely produced on leafy plants about $2\frac{1}{2}$ ft. high.

- ** Else Poulsen** (Flori.)—Clear rose pink with a deeper shade on the reverse of petals. Perpetual blooming on large trusses on vigorous bushy plants about $3\frac{1}{2}$ ft. high. Very decorative rose fit for planting as a hedge.
- ** Else's Rival** (Flori.)—Deeper than the above with more petals. Attractive large trusses on growth about $2\frac{1}{2}$ ft.
- ** Elsinore** (Flori.)—Very bright scarlet of a deeper tone than Concerto and a taller grower. Sent out as an excellent rose of blazing colour. In the short trial it has proved to be a good grower.
- Fashion** (Flori.)—The coral salmon colour is very attractive but the trusses are not large and the growth is shy. If you want to enjoy it please grow it carefully. The deeper coloured 'Spartan' is a much better and more prolific grower.
- ** Frensham** (Flori.)—Unfading brilliant crimson, everblooming and capable of huge trusses, good as a hedge rose. Growth about 3 ft.
- ** Faust** (Flori.)—Vide description of Circus.
- Golden Fleece** (Flori.-H.T.)—Straw yellow which fades. Got a gold medal in Paris and a certificate of merit in N.R.S. It is worth nothing in tropical plains as it is not only a poor grower but also of unattractive colour.
- ** Goldilocks** (Flori.)—The yellow flowers are not only full but beautiful while the trusses are bigger according as you can induce the growth to be stronger. Height 2 ft.
- ** Irene of Denmark** (Flori.)—Pure white, gradually gets a pinky shade with age. Fairly large flowers with enough of petals. Free flowering good growth about 2 ft.
- ** Katherine Ziemet** (D.P.)—Pure white very artistic nearly miniature size flowers in very good trusses. Distinctly fragrant. Bushy light plants of

spreading habit are ideal for edging.
Height $1\frac{1}{2}$ ft.

- * * **Lavender Pinocchio** (Flori.)—Brownish grey buds open to lavender mauve colour. Growth very prolific in trusses. Some people are keen about the oddity of its colour. Height $2\frac{1}{2}$ ft.

Ma Perkins (Flori.)—Pearly pink to light pink, erect grower to about $2\frac{1}{2}$ ft. Flowers freely and several together but, at least in the Tropics, I am astonished to read in a catalogue that about 50 blooms have been produced in a spray. Mr. Bertram Park, a great, present day, rosarian of England, says that the trusses are small. I think there should be a limit to attempts to pull the buyer by the nose.

- * * **Masquerade** (Flori.)—Buds golden yellow with outer petals tinted light red; open flowers are yellow which turn to pink next day and turn to near crimson before dropping. Every bunch on good stems have all the three colours at the same time. Very striking rose. Height about 2 ft.

Mexicale Rose (Flori.)—Sent out as an improvement on Masquerade. It is not yet fully tried by me. It is fuller than Masquerade but less vigorous and has not shown such colour contrast.

- * * **Mrs. Inge Poulsen** (Flori.)—Light rose pink shaded cream. Very attractive in huge trusses. Height about 3 ft. One of the best in this type.

- * * **Moulin Rouge** (Flori.)—Non fading deep scarlet surcharged with velvety tone. The intensity of the vivid colour makes the bunches outstanding. Height about 3 ft.

- * * **Nathelie Nypels** (Flori.)—Rose pink with creamy shades; trusses of very large size are available in

this abundant bloomer on well branched growth about $2\frac{1}{2}$ ft.

- * * Orange Triumph (Flori.)—Orange scarlet full flowers of smallish size are produced in very large bunches. Height about $2\frac{1}{2}$ ft.

Pinocchio (Flori.)—Light salmon pink with creamy yellow shades, at times the colour deepens. Full flowers in trusses. It is not as vigorous a grower as it is beautiful. Height about $1\frac{1}{2}$ ft.

Pompon Beauty (Flori.)—This vermillion-red variety was short lived with me ; the rosette shaped flowers are not in large trusses.

- * * Poulsen's Yellow (Flori.)—Deep yellow gradually fading to light yellow. One of the best in its colour with prolific habit. Growth about 2 ft.

Red Wonder (Flori.-H.T.)—Although this rose has rather disadvantageously large flowers, for its class, the N.R.S. has classified it as just 'Floribunda'! It grows well in the tropics but no 'wonder' is found in the red and the flowers are too few on each stem.

- * * RISHI BANKINM (H.B.)—Since this is a production out of Rosa Indica Semperflorence I would not classify it as a Floribunda although for all practical purpose it is as much bunch flowering and rather a giant Floribunda in performance. Whatever fragrance the present day selection committee of the N.R.S. find in the Floribunda roses in England we find it most illusive in the Tropics. This rose has a distinct rose scent not yet found in any of the Polyantha like bunch flowering roses. Colour of this rose is bright pink and there are enough of petals. Its abundant bunches of Polyantha like small flowers are so regularly produced on bushy vigorous plants, 4 ft. or more

- high, that they are ideal as a perpetual flowering hedge or as isolated specimens.
- * * **Salmon Perfection** (Flori.)—Huge trusses of deep salmon-orange. A really good recent rose that is bound to be popular. Height $2\frac{1}{2}$ ft.
- * * **Salmon Spray** (Flori.)—Salmon pink with carmine on reverse of petals. Fairly large flowers in trusses. Height about 3 ft.
- Sarabande** (Flori.)—This rose has received very high honours from several Rose Organizations in Europe. From the coloured illustrations as also descriptions issued by the distributors and raisers of this rose I find little difference between this and the older 'Cocorico' by the same raiser, at least in colour, shape and truss. There must be some difference, of course, but unless that be quite outstanding I would rather invest my money on a more distinct variety.
- * * **Scarlet Glow** (Flori.)—The name correctly signifies the colour. Huge trusses make it an ideal plant. Height about $2\frac{1}{2}$ ft.
- * * **SHOBHA** (H.B.)—Nice pink, fading to mauve pink and making both shades available in the huge trusses make this abundant and perpetual bloomer quite worthwhile under tropical warmth but as it is a development from *Rosa Indica Semperflorence* I do not classify it as *Floribunda*. More than 200 blooms can be counted on a day, in its season, on growth about 4 ft. high and quite bushy under normal care.
- * * **Spartan** (Flori.-H.T.)—Brilliant salmon-orange of a very distinctly luminous tone. Very full flowers of great attraction are very freely produced, not always in trusses. Bushy growth about 3 ft. high. Outstanding rose.
- * * **SOOR DAS** (Flori.-H.T.)—Intense darkness of velvety crimson enlightened with vivid glow of scarlet.

This rose puts Dusky Maiden to shame as regards velvety darkness and petalage while the vivid sheen is a special attraction. The illustration will show what a number of mediumly large blooms each plant can produce. Very good grower 3 to 4 ft. high and very free flowering. Named after the great saint and poet said to be blind.

Tagore (Flori.)—We are grateful to the Dutch researchist who has so named the rose. Although it is being offered in England as *Floribunda* it grows like a *Dwarf Polyantha* under tropical heat. Flowers are like *Floribundas* but although bushy and compact I have not been able to grow it to higher than 1½ ft. Colour is yellow shaded orange and the plant flowers from every shoot.

*** * TIMIR (Flori.)**—Blackish velvet enlightened with brilliant scarlet glow. Very full flowers in trusses which can be as huge as to produce over three dozens of buds on each of the basal shoots which come out under normal care. Dr. K. S. Aiyer, F.R.C.S. (London), ex-Jt. Hony. Secretary, Madras Horticultural Society, grew this rose for trial and remarked, "It is an acquisition and the darkest *Polyantha* yet seen." Prof. A. R. Shah, of Allahabad was also very pleased with its performance in good weather. Very healthy bushy grower about 2½ ft. It is a perpetual bloomer but under frosty or too hot weather the wonderful colour gets bronzed or burnt.

*** * United Nations (Flori.)**—Pink shaded yellow, fairly full flowers are freely produced, good growth about 2½ ft. high.

*** * Vogue (Flori.-H.T.)**—A shade of deep pink with salmon tone. Flowers are rather large for its class and



ELITE



GRANDMERF JENNY



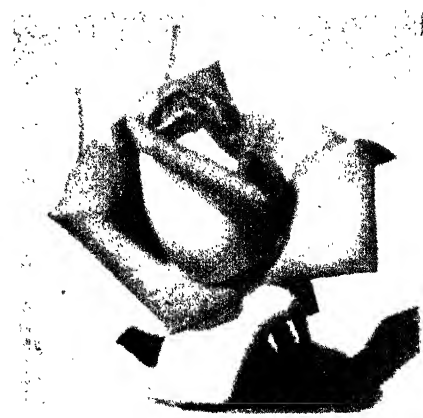
BAYADERE



CHARLOTTE ARMSTRONG



MARGARET



TZIGANE

are like a small H.T. in size and shape. Very free flowering and good growth about 3 ft. The N.R.S. of England has classified it as just 'Floribunda' while a smaller and less H.T. like bloomer 'Faust' has been classified by them as 'Floribunda-H.T. Type'!

Yellow Hammer (Flori.)—Golden yellow ; the buds are nice but the open flowers are not so nice in our climate at least. A recent rose with great reputation in England. Although attractive in the coolest Tropical temperature I believe 'Allgold' and 'Faust' will be more satisfactory in the Tropics.

*** * Yellow Pinocchio** (Flori.)—Yellow to creamy yellow. Fading blooms are nicely tinted pink. Huge trusses can be obtained on plants about 2 ft. high.

CLIMBERS, SEMI-CLIMBERS & PILLAR ROSES

Many people are more fond of bedding roses and much less enthusiastic about Climbers or Pillar roses inspite of the fact that they are not only no less beautiful but are necessities for breaking the monotony of flat rose beds and for screens, arches and walls. Just as you break the hard outline of a barrack like building by adding a portico or a verandah, Pillar roses and/or Climbing roses break the hard outline of your rose beds. Moreover there are some too dwarf or unhealthy roses, under tropical warmth, which you can fully enjoy if you grow their climbing forms provided by natural sports. As examples I may mention Climbing Mev. G. A. van Rossem, Climbing Shot Silk and even Climbing The Doctor which attain perfection in the climbing forms.

The production of show blooms on very rare occasions is meant for the patience and experience of an expert exhibitor. It is something different from successful growing of garden roses which under normal care produce good growth with sufficient flowers at least in their season. An important criterion of the popularity of the Rose is its capacity to produce a display of graceful flowers in sufficient numbers. Climbers or Pillar roses completely satisfy the criterion as they produce quite a number of blooms in their season. As these roses have to grow much more vigorously and have to produce greater bulk, than those of bedding roses, they require greater resources to draw their nourishments from. Pits or beds for such roses should be dug to nearly twice the depth for bedding roses and larger quantities of manure should be placed in the lower levels so that the plants can feed upon them, in the future, when they grow up and push their roots downwards. They should be planted 4 to 5 ft. apart according to growth.

Pillar roses are most impressive in the rose garden either as a centre-piece or in suitable places. It is not at all difficult to have success with them. For supporting the plant there should be a strong wooden pole or a worn out pipe of about 1½" diameter. The support should be hammered down to some extent in the bottom of the pit. Wooden support should be painted

with tar to prevent white ants destroying them. Iron support should be entwined closely with ropes dipped in copper sulphate solution to prevent white ants coming upon them. Without rope covering iron poles will be too hot for the rose twigs during summer. Three poles fixed in a tripod fashion will look better and will allow more room to train three roses upon them with greater effect. Individual poles of the tripod should be connected with ropes and wires and gradually there will be a beautiful pyramid of roses.

Climbing or semi-climbing roses should never be hard pruned. Climbing sports from dwarf roses may revert to the dwarf forms and may be useless through pruning. It is necessary to let them grow as much as they possibly can. One should not get impatient that they are not flowering, they will fully repay the patience and care when they send out laterals from the strong shoots. The rose 'Crimson Glory' is not a shy bloomer but the climbing sport, when allowed to grow bulky, will produce several time more flowers. Strong shoots of climbers will have to be gradually trained, on arches, screens or walls or any support you provide them with. When growth is obtained the shoots are to be so trained along the support that they bend to some extent and are induced to throw laterals by diversion of sap. In due course all the healthy laterals will provide enough of flowers.

Only unhealthy or very weak laterals should be pruned. The secateur is very much less needed than training and bending of the strong shoots, according to necessity, to provide flowering stems which are usually obtained through pruning in bedding roses. Climbing roses of the type of Wichurianas and most Ramblers will, of course, require hard pruning of all shoots that have flowered. These roses flower from new shoots but they are meant for frosty zones only and will flower only on very high hills in the Tropics, which get frost, so they are useless in the tropical plains.

LIST OF VARIETIES.

- * * Celine Forestier — Nicely formed buds of light yellow which open out to large flowers nearly white.
This can be trained to a wall, screen or

over arches. It can rise about 15 ft. Flowers in bunches usual to Noisette class. I am not sure of the name as this variety is much older than myself and I do not know whether the gardeners of my late father remembered the correct name.

- * * Clg. **Caroline Testout** (H.T.)—Produces identical but better flowers than the dwarf rose. Better trained as a Pillar or on screens about 7 ft. high.
- * * Clg. **Crimson Glory** (H.T.)—The famous dwarf is not quite vigorous in every situation but this sport is very vigorous, in some places reaching 10 ft. and will produce many more blooms.
- * * **Crimson Rambler** —This type of Rambler rose easily flowers on established plants and the brilliant crimson flowers are very artistic like a Polyantha rose. Good as a Pillar. Growth above 6 ft.
- * * Clg. **Etoile de Holland** (H.T.)—Flowers identical with the dwarf and equally sweet. Good as a pillar or on a screen about 8 ft. high.
- * * Clg. **General MacArthur** (H.T.)—Flowers identical to the dwarf and equally sweet. Grows about 8 ft. high.
- * * Clg. **Golden Dawn** (H.T.)—Flowers more impressive than the famous dwarf. Can be made vigorous enough for Pegging down. Growth about 8 ft.
- * * Clg. **Goldilocks** —This climbing sport from the famous Polyantha is very attractive with bunches identical to the dwarf and are admirable on pillars or screens. Grows about 8 ft.
- Mermaid** —This rose flowers successfully only in frosty zones. In tropical plains it grows to huge dimensions but very few of the single flowers are produced
- * * Clg. **Mrs. Aaron Ward** (H.T.)—An outstanding shade of

yellow. Grows erect as a pillar even without support but better if trained. Spring blooming. Height about 7 ft.

Clg. **Madam Edward Herriot** (Pernet.)—Not satisfactory in tropical plains.

* * Clg. **Madam Henri Guillot** (H. Pert.)—Very vigorous sport from the bright orange-red dwarf with identical flowers. Worth having rose. Height 8 to 10 ft. according to situation.

Clg. **Mev. G. A. van Rossem** (H. Pert.)—The same highly coloured flower of the dwarf with growth about 8 ft.

Clg. **Mrs. Sam McGredy** (H. Pert.)—Flowers are superior to the dwarf which is very famous in cool zones but a difficult grower here. The climber grows better.

* * Clg. **New Yorker** (H.T.)—Pery impressive blooms are at times even better than the superb dwarf. Height about 7 ft.

* * Clg. **Orange Triumph**—A glorious climber in bunches at times larger than those of the famous dwarf. Flexible growth like that of Clg. **Goldilocks**. Can be a very contrasting pair if trained together with Clg. **Goldilocks**. Both are of similar height.

* * Clg. **Peace** (H. Pert.)—For places where the dwarf **Peace** is too dwarf and miserable, the climbing sport is a boon. In northern India it grows to 15 ft. In places with less cool winters in the Tropics it can easily grow like a big bush, about 6 ft. or more in height and the strong shoots may be pegged down. It produces better blooms than those of the dwarf.

Clg. **President H. Hoover**—Not a good grower, in tropical plains, to suit the purpose of either pillar or a climber.

* * Clg. **Shot Silk** (H. Pert.)—Flowers identical to the dwarf; famous only in very cool zones. Grows freely to about 7 ft.

- * * Clg. The Doctor (H.T.)—Better flowers than those of the very famous dwarf. Grows to a vigorous bush, even without support, 6 to 8 ft. high. Superb blooms are produced at intervals with very sweet scent.

Clg. W. E. Chaplain (H.T.)—Now completely ousted by Clg. New Yorker.

- * * DEOGHAR CLIMBER No. 1 (H.T.)—Beautiful pink long bud opens to very large and full flowers with some fragrance. Can be left to grow as a big shrub or can be spread out on a screen. Height about 8 ft.

- * * DEOGHAR CLIMBER No. 2 (H.T.)—Very sweetly scented light pink shaded cream. The massive blooms are too full to open without warmth. Glorious during summer, rains and autumn. Grows about 8 ft.

- * * DEOGHAR CLIMBER No. 3 (H.T.)—Glowing crimson which gets a magenta-mauve tint with age. Large and full flowers with sweet scent. Blooms freely at intervals during season. Height about 8 ft.

- * * High Noon (H.T.)—Intense yellow of Pernet tone. Good as a pillar or a tall rose in the back rows. A popular American rose. Height about 6 ft.

- * * LALKILLA (H.T.)—Described in the list of large flowering roses. With extra feeding it can attain over 6 ft. height.

Madam Gregoire Staechelin (H.)—Also known as 'Spanish Beauty'. Although quite popular in Europe and America this variety should not be grown in the Tropics. In the warmer plains it refuses to flower and in frosty parts it flowers for a very short period.

- * * Marechal Neil (N.)—The famous yellow creeper which, although over 90 years old, still reigns supreme in all tropical situations without

much frosts. Pits 3 cubic feet deep and filled up with liberal quantity of old manure will grow it, with proper support, to a height of at least 15 ft. No other climbing rose, however modern, can produce so many flowers per plant and for such length of season. Its fragrance is also attractive.

Paul's Scarlet Climber—This created a sensation when introduced in England but always refused to flower in Tropical plains. In frosty regions it blooms during summer only. Another variety 'Blaze' introduced as more free bloomer equally refused to flower with me. Blaze is nowhere under blazing sun!

**** PUJARINI (H.M.)**—This is not a real climber but very worth while as a pillar rose or as a specimen plant of tall height. Almost thornless growth freely producing perfect flowers of high centred form, plenty of petals, very large size and very sweet scent. Colour cream with light pink shade towards the edges of petals. Messrs Cants of England was much impressed with its performance under their glass house and considered it to be good enough for being placed for awards in the British Trial Grounds where after two years, trial the Secretary of the N.R.S. wrote, 'it is not showing a great deal of promise' in their grounds unprotected from the accute frosts. Height about 5 ft. but can be kept lower.

**** Souv. de Claudius Dennoy (H.T.)**—Very large bright flowers are produced intermittantly. A semi-climber with spreading growth and a very large flowering one suited to the screen. Height about 7 ft.

**** Striped Reine Marie Henriette (T.)**—This sport from the

climber R. M. Henriette is also known as Mad. Driout. There is no other striped rose to bloom so successfully and freely in Tropical plains. Light pink petals are striped and banded deep carmine.

SOME FACTS ABOUT PERFORMANCES OF MY PRODUCTIONS IN ENGLAND

The following is a copy of my letter dated the 26th August 1959 addressed to my sole agents for distribution of my productions in Europe and America. (My productions are prefixed PBS.)

This letter has to be studied in the context of the report of the famous rose raiser Mr. Kordes of Germany, quoted at page 88 of this book, and the foreword of Sir Leonard Adami wherein he had stated his sad experience in the tropical warmth of India about roses which are very attractive and popular in the harder cold zone of Europe. Accordingly it is no wonder that varieties which have a constitution more inclined to the original race of Hybrid Teas cannot relish harder cold climate and the most satisfactory roses in zones with harder cold climate are far below their standard and often miserable existences in tropical climate.

C. F. Roberts, Esqr.,
Director,
Messrs Frank Cant & Co., Ltd.,
Braiswick Rose Gardens,
Colchester,
ENGLAND.

Dear Sir,

I thank you for your letter OJ/2/8 of the 6th instant enclosing copy of letter from the Secretary, National Rose Society of England. Kindly have patience over this letter which has been too long owing to the recounting of all opinions from you, about my productions, and relevant discussions about their future in your harder climate. Dates of your letters are quoted on the left side

26/ 8/54—"PBS/4 & PBS/29 will probably be worth working,"

- 12/11/54—"PBS/4 & PBS/29 we intend to send to the Trial Grounds. We will also try some of the more globular varieties under glass (we are at the moment erecting a glass house.)"
- 2/ 8/55—"There are 3 varieties for which we think there might & be a future namely PBS/42, PBS/52 and PBS/37, the 31/ 8/55 latter being the best of the three."
- 18/ 2/56—"We quite like the varieties PBS/37 and PBS/52."
- 15/ 8/56—PBS/29 "Growing well."
 PBS/37 "We are interested in this rose."
 PBS/52 "Sweet scent, very pleasing variety."
 PBS/56 "Colour quite pleasing."
 PBS/71 "Dark pink, similar to Show Girl."
 PBS/75 "Good, strong plants, whitish cream."
 PBS/99 "Very free flowering soft pink."
 "We are very interested in the varieties PBS/56, PBS/61, PBS/71, PBS/68, PBS/75 and PBS/99."
- 5/ 3/57—"We are pleased to inform you that we have despatched to the Trial Grounds the following varieties—PBS/89, PBS/56, PBS/52, PBS/4 and PBS/16. *We trust an award will be given to some of them.*"
- 29/ 5/57—"PBS/29 has obtained 47 marks in the Trial Grounds. *It was affected by frost in February 1956. They hope the points may improve.*"
- 7/ 8/57—"We like PBS/42 very much and think there will be possibilities for the varieties PBS/71 and PBS/107.
 We hope to send plants of the varieties PBS/37, PBS/42, PBS/69, PBS/71 and PBS/76 to the Trial Grounds after this summer as *we think these varieties are very pleasing.* PBS/57 is more pleasing this season and we like same. PBS/66, PBS/69, PBS/70, PBS/71, PBS/76, PBS/79, PBS/82, PBS/83, PBS/86, PBS/89, PBS/92, PBS/100 and PBS/101 have improved this year and we think they have possibilities."
- 31/ 5/58—"PBS/52 has shown the best growth and received 14 points (out of 20) in the Trial Grounds."

- 30/ 7/58—PBS/108 "Like Independence but a shade deeper."
 PBS/115 "Colour quite pleasing."
 PBS/135 "Nice white but *does not like our wet weather.*"
 PBS/140 "Good grower, too similar to Chrysler Imperial, may improve as a cut back."
 PBS/141 "Quite a pleasing rose."
 PBS/174 "Quite pleasant but think it requires dry weather."
"We quite like the following varieties and will watch them with interest—PBS numbers 18, 42A, 71, 130, 132, 136, 142, 144, 152, 162. We also like PBS/147 and would like to know whether it is a shrub rose or as to what you will classify it."
- 2/ 7/59—"From the varieties received last year the following may have a future—PBS/122, PBS/132, PBS/133, PBS/141, PBS/144, PBS/153, PBS/162, PBS/168, PBS/199, PBS/233, and PBS/245. We also wish to inform you that WE ARE UNABLE TO STATE NOW WHICH "PBS" ROSES WERE CUT AND EXHIBITED AT THE INTERNATIONAL ROSE CONFERENCE LAST YEAR."
- 5/ 8/59—Copy of letter from Secretary, National Rose Society of England, sent by you, about PBS numbers:—4, 16, 37, 42, 52, 56, 69, 71, 76, 89 and 99—"I am sorry not to be able to give a pleasing report on the above roses sent for Trial. Unfortunately there is not one of them which shows any promise—growth has been poor and *last season many were striped quite early of their foliage.* IT IS OBVIOUS THAT THEY DO NOT RELISH OUR HARDER CLIMATE."

Formerly roses grown outside the open Trial Grounds of the N.R.S. either in the Gardens of the raisers and/or distributors or under protection of glass houses, from the harder British climate, were eligible for awards. *The N.R.S. is now really national in*

refusing to consider any new rose, however good it may be, unless it can stand frost and the harder climate in the unprotected British Trial Grounds fully exposed to your weather. It has always been the usual experience of rose fanciers in the Tropical warm zones that varieties which produced the best flowers under glass protection, in your harder climate, were good for the Tropics while the high award winners which were most popular in the open gardens of Britain either proved second grade or were complete failures under Tropical warmth.

I may point out that the Rose World is not confined to harder climate of the cold zones only. I had therefore requested you to place my roses in more sunny warmer Trial Grounds of France, Spain, and Italy but you said that you are moving under the policy of counting on your national Trial Grounds. While there is considerable difference between the assessments of a highly reputed old firm like yours and the assessment of the British Trial Grounds, I have to point out the following facts. At page 214 of the 1924 Annual of the National Rose Society of England there appeared the opinion about a the then popular new rose viz:—*“There is one rose that has not been staged for an award, which in my opinion is a pity, as it would have probably stood a good chance for high honour. The reason was, the raiser is on the New Seedling Committee. I refer to the rose Dr. A. I. Petit.”* So there was a time when a raiser would not place his production for award if he was in the Selection Committee for granting awards. At present no less than six people are in the Selection Committee of the N.R.S. who are themselves raisers and/or distributors of majority of the new roses. Without having a disrespect for them I am sorry to mention that a Director of a present day famous British firm of rose dealers offered to be agents of my productions but his letter, offering an unacceptably low rate of royalty, mentioned that he is in the Trial Ground Committee for selection of awards! It is a known fact that the present day showmanship has greatly increased the overflowing descriptions by the raisers of new roses in Europe and America and even hyperbolic classification like “Grandiflora” has been coined to bewilder buyers. Some British amateurs and even an ex-President of the American Rose Society have publicly complained against “Aggressive programmes with contracts for exclu-

sive rights and spectacular advertisements with florid descriptions", "Invested interests" and "Commercial racketeering" in roses at the cost of the buyers. A firm of very old and reputed rose specialists as yours is not represented in the present day Trial Ground Committee and it is too much for me to know whether it makes any difference to my productions but the fact remains that although they should not have any consideration from the N.R.S. if "*They cannot relish your harder climate*" your assessments about them create a perplexity.

I have sent a very large number of new roses to you at very considerable costs over Air Mail postage. You have not yet completed full trial of all of my productions and I fully believe that I have sent some which should be considered as good as many of your zone's worth while roses. If in due course each one of them *fail to be promising under the harder climate of the open Trial Grounds in England* it will be useless to send any more of my productions.

Yours faithfully,

B. S. BHATCHARJI.

LIST OF SOME "PBS" VARIETIES WHICH HAVE BEEN ALREADY NAMED AND ACCLAIMED TO BE VERY SATISFACTORY IN SUCH PARTS OF INDIA WHICH NEVER HAVE HARD CLIMATE WITH SHARP FROSTS OR HAZY SUN.

PBS/4	..	"Avinash."
PBS/8	..	"Netaji Subhas."
PBS/11	..	"Ananda."
PBS/14	..	"Radharani."
PBS/16	..	"Pujarini."
PBS/18	..	"Deoghar Climber No. 1."
PBS/18A	..	"Deoghar Climber No. 2."
PBS/23	..	"Rishi Bankim."

PBS/24	..	"Champa."
PBS/26	..	"S. Percy-Lancaster."
PBS/28	..	"Sudhamay."
PBS/42	..	"Raja Ram Mohan Roy."
PBS/52	..	"Rajendra Prasad."
PBS/62	..	"Sthalkamal."
PBS/69	..	"Shree Ma."
PBS/71	..	"Rani Jhansi."
PBS/75	..	"Bapuji."
PBS/76	..	"Shri Babu."
PBS/82	..	"Kattabhommen."
PBS/83	..	"Karunamoy."
PBS/86	..	"Kamala."
PBS/88	..	"Deoghar Baby."
PBS/89	..	"Timir."
PBS/101	..	"Dr. Budhen."
PBS/104	..	"Lalkamal."
PBS/106	..	"Deoghar Climber No. 3."
PBS/107	..	"Deepak Rag."
PBS/108	..	"Vidyapati."
PBS/122	..	"Zakir Husain."
PBS/135	..	"Jimutbahan."
PBS/140	..	"Rana Pratap."
PBS/146	..	"Kailash."
PBS/152	..	"Soor Das."
PBS/154	..	"Deenabandhu Rev. C. F. Andrews."
PBS/156	..	"Agni Veena."
PBS/167	..	"Mauve Queen."
PBS/174	..	"Samrat Ashok."
PBS/187	..	"Kalima."
PBS/228	..	"Lalkilla."

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